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A GERMAN CRITICISM OF THE AMERICAN RUBBER TRADE.

THE agreement entered into in January between the British Government and the Rubber Club of America acting in behalf of the American rubber trade, under which the embargo on rubber exports from London was lifted, comes in for some criticism by our German contemporary, the "Gummi-Zeitung." In its issue of March 19 it expresses the following editorial opinion:

"We are surprised that the otherwise liberty-loving Americans have accepted this British control over their independence, and are thus helping their strongest competitor to injure Germany. No one can any longer describe this way of doing business as 'neutral.' This pact with our most bitter enemy makes it clear to us that America not only has but little friendliness in her feelings towards us, but that she actually sanctions the English methods of warfare. In any event this submission to outside control is absolutely unworthy of an independent industry. We feel a sense of shame for the American manufacturers who accept it and even appear to be proud of doing so. The German rubber industry would do well to engrave in its memory the conduct of these American 'colleagues.'"

We are not disposed to quarrel with our contemporary over the expression of its views. It is quite natural that a German paper should look at the matter from a German viewpoint. It would be rather more than human for a writer scanning the horizon from Berlin not to have something of a bias. Nevertheless, in view of this charge that the American manufacturers have submitted to improper dictation, it seems quite in place briefly to recite the facts—which are plain and obvious and which indicate no unfriendliness for any country, nor carry with them any suggestion of sanction of the methods of warfare pursued by any country. The case is a particularly simple one:

England had the rubber and could put whatever conditions on its release she chose; and she naturally determined upon such conditions as would make it impossible for her enemies to profit by its export. England was surely entirely within her rights. In a like situation Germany would have exercised equal caution. Under the circumstances, the conditions imposed were altogether justifiable.

Now, as to the American manufacturers. They needed the rubber which was piled up in London and were willing to comply with any reasonable and proper terms in order to secure it. If they had refused, the embargo would have continued and would have worked great injury to American manufacturers while in no way helping the German manufacturers. The question, in reality, was not one of neutrality at all. The question was simply one of taking the necessary means—as long as no impropriety was involved—for getting the material that was indispensable not only to the continuance of a great American industry but for the general welfare of the American public.

If Germany controlled any product indispensable to any American industry and its export to our shores were possible, American manufacturers would be equally willing to enter into a compact not to permit any part of such product or any article manufactured from it to give aid and succor to the Kaiser's enemies.

A KIND OF THEFT TOO LONG CONDONED.

A BILL was recently passed in Albany which should be the signal for the placing of a similar law on the statute book of every State in the Union, for it prohibits the commercial use by anyone not properly entitled to it of a family or firm name to which someone else has given reputation and value. Certainly every honest merchant

must approve of such a law, and every consumer, regardless of his moral qualities, will profit by its passage.

Probably every industry can show instances of this kind of theft—the stealing of reputation—but in the retail rubber trade this offense has been particularly flagrant. To the general consumer there is no other rubber name that carries so much weight, and therefore is so valuable in retail merchandising, as the name Goodyear; and that is the reason that every unscrupulous fellow who can get hold of a stock of antique, damaged or otherwise inferior raincoats, immediately takes a temporary lease of some empty store, fills his windows with garments marked at prices to catch the unwary and blazons the name Goodyear across the front of the building. The enactment of this law, too long delayed, will effectually stop this dishonorable use of a very honorable name.

THE VALUE OF ADVICE DEPENDS UPON ITS SOURCE.

AN interesting item is floating around the newspaper world which, with the caption, "Oil Your Rubbers," reads as follows:

"Before wearing your rubbers rub them well with vaseline, lard or sweet oil, letting it remain on for a day or two. The greater part will be absorbed by the rubber and the grease will prevent the rubber from breaking."

A man with a sinister cast of mind might possibly suspect that this paragraph emanated from the manufacturers, who, piqued at the shortage of snow during the early part of the winter—when snow counts most—hoped to get a few million people to oil their overshoes and thus help along the desirable work of consumption. But the manufacturers can readily prove their innocence, for, with conspicuous disinterestedness, they are continually warning the purchasers of rubbers against the insidious touch of oil or grease. Practically all the literature distributed by the rubber footwear makers speaks of this very subject. Here is what the 1915 catalogs issued by four different companies, taken at random, have to say on the oil question: "Oil will ruin any rubber," says the first. "Oil will destroy any rubber," reiterates the second. The third amplifies the statement into "Oil or grease will destroy any rubber"; while the fourth declares "Grease of all kinds is injurious to rubber goods and will eventually decompose the rubber."

In view of these statements, which are certainly quite lucid and intelligible, the advice to "oil your rubbers" cannot be laid at the door of the manufacturer. He has done his full duty. And those who vaseline their sandals and storm slippers, with unhappy results, will have to thresh the matter out with the particular editor who was the cause of their misfortune.

THE GERMAN GOVERNMENT AND RUBBER.

THE report that Germany offers to her chemists an ample reward for the discovery of a practical substitute for the rubber truck tire is interesting. It in the first place argues a definite shortage in both crude and reclaimed rubber. It suggests also that the spring wheels that have of late been adopted are not a success. And last of all it points to the present failure of synthetic rubber. What the Teutonic chemists may be able to produce in the way of "factice" is as yet unknown. Those who know rubber substances will be skeptical, but necessity has mothered many impossible inventions.

Even more remarkable is the offer of the German Government of 100,000 marks for a process for reclaiming rubber. The acid and alkali processes are understood and used by the large German rubber manufacturers. They have also a knowledge of the art of "revivifying" waste rubber. In spite of this they have of late years been large buyers of English, Russian and American reclaimed rubber. Is it possible that this means that, once the war is over, Germany plans to do all of her own reclaiming?

RUBBER'S CONTRIBUTION TO THE SCIENCE OF BURGLARY.

THE rain falls on the just and the unjust alike, and many beneficent conceits of the human mind have been put, unfortunately, to highly improper uses. For instance, modern surgery owes much of its success to the antiseptic conditions under which it may now be performed, and these conditions are possible by reason of the delicate rubber gloves which the surgeon may now wear. But burglary as well as surgery is rather a deft industry and to succeed must be conducted along the lines of modern science. A few nights ago an office in the lower part of New York City was broken into, the safe opened and its contents—amounting to several hundred dollars—carried away. But evidently the operators were hurried in their work, for they left behind them various tools and other insignia of their vocation. The detectives at once began a minute examination for the damning finger prints, but found themselves balked, as there were no finger prints. The burglars evidently believed in germs—at

least in the germ of discovery—and had done their work with their hands carefully covered by surgeons' rubber gloves.

BUSINESS PSYCHOLOGY IN FOR A TROUNCING.

A THOROUGHLY absorbing and highly valuable study is psychology, and it is applicable to many phases of life where mental alertness is a prime factor, but when the psychologists tell us that the foreman of a grinding room cannot properly discharge his duties or a salesman on the road adequately find a market for a gross of raincoats unless they have both steeped themselves in psychological literature, they are going rather too far. They have been much too insistent upon their claims for attention, and the business man, who has so often been told that he can get no proper grasp of his business problems without the assistance of some expert trained in the charts, diagrams and formulæ of the books, will feel a certain sinister joy in the fine trouncing that Professor Boris Sidis, of Boston—one of the greatest of psychologists—administers to his fellow experts who have been so fond of declaring that their particular science was the *sine qua non* of commercial success. Here are a few refreshing excerpts from Professor Sidis' book recently issued, entitled "Foundations of Normal and Abnormal Psychology":

"Any intelligent business man knows infinitely more about business and how to obtain the best results out of certain conditions than all the psychologists with their laboratory experiments, their artificial statistics and puerile, trivial experimental arrangements, giving results no less trivial and meaningless."

He goes on to observe further: "We may as well expect the comparative psychologist to offer practical points on the efficiency of cows to give milk, or on the efficiency of hens to lay eggs. . . . Psychological business claims are illusory. The sooner the practical business man learns this fact the better for him, and also for the earnest psychological investigator."

Of course, no one questions the efficiency of certain psychological tests to meet certain specific conditions—like, for instance, Professor Munsterberg's bi-colored charts to discover the engineer's quickness of eye and rapidity of mental action—but in the great majority of cases the claims of the psychological advocates as applied to business efficiency have certainly been grossly exaggerated, and it is accordingly quite agreeable to hear one of them make this admission in such vigorous fashion.

THE CONSUMER WANTS TO KNOW.

WHEN prices go down the consumer pockets the difference and goes unquestioningly on his way, but when prices go up he always wants to know why. The reason he usually assigns, himself, is the one nearest at hand, namely, that the iniquitous dealer is giving the screw another turn. Generally the dealer is blameless, or at least only partially responsible for advancing prices. Usually the cause is quite remote from the retail store where the public makes its purchases. This being the case, it is always desirable for the retail dealer to point out the true facts to the consumer, so as not to have the burden rest too heavily on his own shoulders.

One would imagine that it should be fairly clear to people in Germany why prices of commodities—including those made of rubber—have advanced during the last eight months. The reasons appear to be patent enough. But, according to reports, the German consumer, exercising the privilege of his class, is complaining very bitterly that he has to pay so much more for articles of rubber than he did formerly. He has made such a protest that a general circular—reproduced on another page—has been prepared for the retail dealers to distribute, calling the attention of the public generally to the fact that when a country is at war and its supplies of materials shut off, its skilled laborers taken from their work and sent to the front, its factories partially or wholly incapacitated—when, in short, all the machinery of manufacture and distribution is quite out of gear and generally dislocated, the upward shoot of commodity prices is a fairly logical consequence and reasonably to be expected.

WHY NOT THE R. C. A.?

THE short cut has always been supposed to make a strong appeal to the American mind. Yet sometimes we go all the way around when we might quite as well make a quick leap across. For instance,—abroad, all the important rubber clubs are almost invariably referred to simply by their initials. When our English friends want to speak of the Rubber Growers' Association or the Rubber Trade Association they don't take the time and space to round these titles out in full, but simply call them the R. G. A. and R. T. A. and let it go at that.

Some American societies have adopted this convenient habit of abbreviation. The Society of Automobile Engineers, for instance, is almost always referred to as the S. A. E., and the National Automobile Association is commonly known as the N. A. A. So why should not the rubber trade follow these excellent precedents and use R. C. A. for the Rubber Club of America and R. T. A. for the Rubber Trade Association of New York?

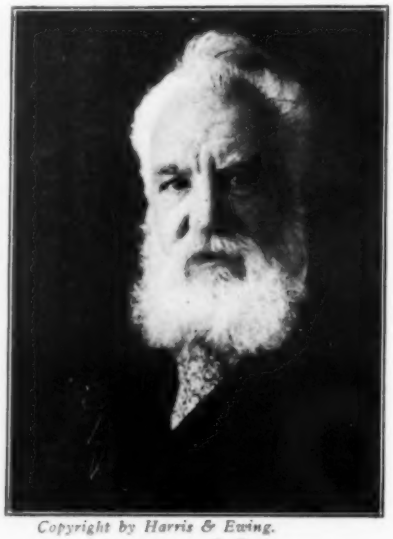
PRESIDENT HODGMAN OF THE RUBBER CLUB OF AMERICA, INC., is deserving of the thanks of the whole American rubber trade for his work during the past winter. It was due to his initiative, his organizing ability and his untiring effort that the embargo problem was solved. Not only that, but the rearrangement of the Rubber Club in respect to its constitution, its scope and its opportunity for future usefulness is largely the result of his constructive genius.

The Telephone and Its Dependence on Rubber.

THE twenty-fifth day of January last will go down in history as an epoch-marking date in the annals of telephony. Upon that occasion Alexander Graham Bell, in New York City, spoke across the breadth of our land with Thomas A. Watson, in San Francisco. Less than 40 years ago those same men were the first to transmit and hear human speech through the medium of wires stretched then over a span shorter than a hundred feet. No wonder Bell, the inventor of this marvelous system of communication, said, as he turned from the transmitter, after hearing Mr. Watson 3,000 miles away, "It's wonderful! Simply wonderful!"

THOMAS A. WATSON.

THEODORE N. VAIL.



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ALEXANDER G. BELL.

Many of us have still fresh in our memories the commercial advent of the telephone and can recall vividly its early imperfections even when used within a city's limits, and all of adult age know how brief is the interval since the long-distance telephone became a medium of daily service. Therefore, we can understand and appreciate Dr. Bell's exclamations. Many inventive minds and hundreds of trained engineers have lent the best of their skill in the developing of the telephone and its contributive apparatus since Dr. Bell first brought it into being a little less than two-score years ago, but that does not alter a bit the marvel of the telephone's birth.

The second day of June, 1875, will always be a memorable one, for on that occasion an accident brought a revelation to Dr. Bell who at that time, with Mr. Watson, was working away at his so-called "harmonic telegraph" apparatus. It seems one of the transmitter springs of the telegraph instrument in Watson's room stuck, and this bit of magnetized steel produced a current that sent a faint vibration over the electric wire to Bell's receiver something less than a hundred feet away in another chamber. Bell heard that sound, and at once his inventive imagination saw the possibility of the telephone. If the tone of that vibrating spring could be carried over a wire, why not, then, the vibrations of the human voice? To him, the answer was yes, and fulfilment became a question of working out the necessary details.

But the details took many months of labor and patient investigation, and the two young men worked early and late. At the time they were boarding in Boston, and between his room and that occupied by Watson, Bell ran the wires of his experimental circuit. Finally, on the tenth day of March, 1876, Bell, in his room on the top floor, put his mouth to the transmitter, which he had fashioned for his system, and called, "Mr. Watson, come here, I want you." And Watson made haste to comply, rushing into his associate's room with the excited exclamation, "I heard you; I could hear what you said!" Again, it was a matter of details to work out the elements of a commercial system, and how well Dr. Bell succeeded then can be gathered from the fact that it was with his original transmitter, having a vibrating diaphragm of animal membrane, that the inventor talked with Mr. Watson on the 25th of January over the wires reaching from New York to San Francisco.

Thinking the world would be interested in his telephone, Bell decided to exhibit it at the Centennial Exhibition in Philadelphia, in 1876. But so little impressed was the management with the apparatus that Bell's display was poked off in an out-of-the-way corner and generally overlooked by the public hungering for things spectacular—as they understood the term. However, one day along came the Emperor of Brazil, Dom Pedro, who knew of Bell because of the latter's work in acoustics. Bell explained the telephone and persuaded the Emperor to listen at a receiver while he talked. Dom Pedro dropped the instrument, exclaiming: "My God, it speaks!" And the amazement of the distinguished visitor attracted attention to its cause. Bell and his invention were soon the main features of the Centennial.

Just the same, business recognition lagged. But Bell and his few faithful associates stuck to their task, and inside of sixteen months after this patent was issued—that is, by August, 1877—there were 778 telephones in service in Boston. At that time the business was organized under the name of The Bell Telephone Association. And then the inventor substantially turned the task of further development over to others. From that modest beginning has grown the continent-wide system of communication by wire which has revolutionized commercial life here and has brought into intimate vocal touch people physically scattered far and wide.

In the United States, the telephone joins audibly no fewer than

70,000 communities. The plant of the American Telegraph & Telephone Co. and its associated companies alone represents an investment of $850,000,000. The army of men and women engaged in its operation, exclusive of those employed by connecting companies, numbers 160,000. The messages transmitted over its lines number approximately 9,000,000,000 a year; equivalent to 26,000,000 messages a day, or more than 1,000,000 for each hour throughout the twenty-four. When Dr. Bell sent his message by wire over 3,400 miles of line to Mr. Watson, he utilized only a part of the entire telephone system of this country, which embraces 9,000,000 telephones bound together by an intercommunicable network of 21,000,000 miles of wire.

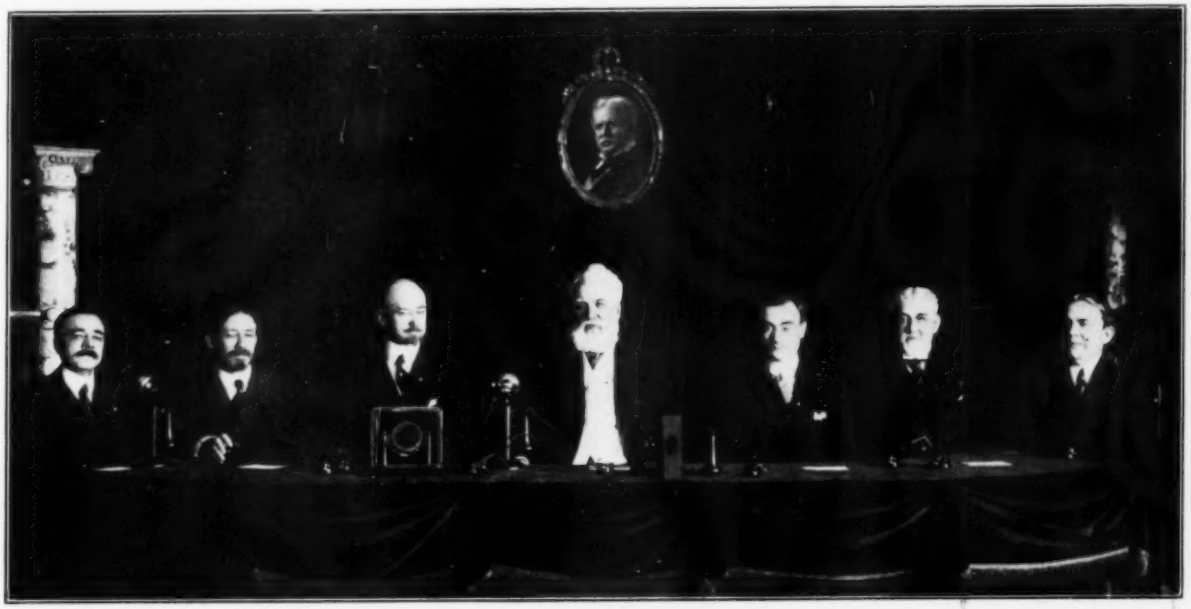
Strange as it may seem, the telephone uses an extremely feeble electrical current, and yet that current must respond sensitively to the sound waves set up by the human voice and ranging all the way from a modest 200 to something more than 2,000 vibrations a second. These minute waves must speed along over the wires without breaking the rhythm of their procession; there must be no jostling or confusion, and each undulation must reach its destination with its characteristic shape, for upon this particular factor hinges the success of intelligible reproduction of the message.

Now the part that rubber plays is that generally of an insulator, a protecting cloak that keeps the feeble current within bounds and prevents it going astray along the metallic path laid out for it. There are critical stages in the travel of each sound-wave where no other medium serves so well to prevent this harmful leakage, despite the fact that the prod of economy has sent the engineers hunting broadcast for a cheaper substitute. The story of rubber's efficiency begins the moment you start to use the telephone. The line is automatically opened by the taking down of the receiver, and that receiver casing is made of hard rubber. Why? Because that substance has certain physical qualities that make it superior for that employment. Therefore, every time any one of the 9,000,000 instruments in the United States is used a debt of thanks is due to india rubber. Possibly we can be a bit more specific.

The transmitter has the benefit of the vocal waves as they issue from the speaker's mouth with their maximum vigor, while the receiver gets these waves enfeebled by the journey they make in coming over the wires. Therefore the receiver must be fashioned of that material which will serve best to guard these vibrations at the moment of their delivery to the auditor. Accordingly, the telephone engineer has found that india rubber will answer for this part of the apparatus more efficiently than any other material.

Speaking from within the home, the hotel, the office, or any other public structure, rubber shields the current from the instrument down through the building until the connection is made with the outside line, be it an overhead or an underground conductor there. A tidy housewife sees to it that the floors and baseboards are duly washed from time to time, and the same sanitary precautions are taken in any well-kept building, therefore there is the danger of moisture reaching the telephone wires, and the fear of dampness is also present when the conductors are run within the walls, as is commonly the case in hotels, skyscrapers and other business edifices. Rubber coatings for all of these wires are necessary to prevent short-circuiting and to lead the electrical currents in the way they should go. Therefore, the intramural leads of every one of these 9,000,000 telephones must be insulated with rubber until they have joined the overhead wires or have effected their junction with the underground cables. The latter, because they are sealed inside of leaden jackets and safe from the reach of moisture, are insulated by means of paper, which answers well enough today. The weakness of the current permits this so long as the covering of lead is there to keep out the dampness.

But, before you get the answering voice from the number called for, india rubber again figures importantly in the line. It is not necessary here to attempt to describe the details of telephone switchboards, but whether the switchboard in question be that of the business office, the hotel, the local district, or central, every time the plugs of the connecting circuit are shoved home the vitally necessary insulation is furnished by rubber. True, the individual amount of rubber in each plug is not great—it isn't large because the stuff is so efficient—but it is indispensable for that service, and many millions of plugs are employed in the multitudinous ramifications of the telephone as it reaches into the public, the private and the domestic walks of life. Again, don't let us forget that there is the toll-line switchboard to be considered



ALEXANDER G. BELL (CENTER OF GROUP) TALKING IN NEW YORK WITH MR. WATSON IN SAN FRANCISCO. ON HIS RIGHT, U. N. BETHELL, SENIOR VICE-PRESIDENT OF AMERICAN TELEPHONE & TELEGRAPH CO.; ON HIS LEFT, MAYOR MITCHEL, OF NEW YORK.

when long distance service is called for, and there are connecting switchboards at the receiving end. Not only does each plug have its insulation of india rubber, but there is an intermediate device called a "jack" which is also fashioned of this same substance, and there are hundreds of thousands of these doing duty.

In addition to the use of rubber in wire insulation, a very large quantity of friction tape is used for splicing telephone wires and making the necessary joints. Probably most people if asked to hazard a guess as to the amount of this tape used for such purpose would name some quite inconsiderable figure, but as a matter of fact the annual consumption of this tape for telephone uses is probably close to 6,000,000 pounds. At least 200,000 pounds of friction tape is made a week, through the year, or, we will say, 10,000,000 pounds for the year; and 60 per cent. of this is used on telephone wires.

Then there are certain accessories that are by no means an unvarying accompaniment to telephone instruments but which are used often enough to make a large aggregate consumption of rubber. For instance, the soft rubber cushion for placing over the hard rubber receiver. A great many people prefer this soft cushion, as it is more agreeable to the ear and, in addition, shuts out outside noises and is particularly desirable for use where the operator's hearing is somewhat defective. And, as a counterpart to this cushion receiver, is the muffler, to be placed over the composition mouth piece, which is also made of soft rubber and fits closely around the mouth. The advantage of this is the fact that one's conversation is not likely to be heard at any distance from the telephone and also that noises around the speaker are not taken into the receiver together with his voice. In fact, in its exclusion of foreign sounds the muffler serves very well as a substitute for the private booth.

It is quite impossible to state in figures the total amount of rubber used in the telephone installations leading to the 9,000,000 instruments now in service. So, too, we cannot give the statistics covering the number of miles of rubber-insulated wires. The fact is that if we were to include in our estimate all of the rubber-coated telephone conductors in hotels, apartment houses and office buildings, the system would be a great deal longer than the 21,000,000 miles of wires given us by the United States Bureau of Census. Again, we have not considered at all the indispensable part played by rubber in installing and in maintaining the telephone systems of this country. Don't let us forget that the men who do this work have to labor under water, in water and exposed to all kinds of inclement weather. Diving suits, rubber boots, and coats and caps of the same materials are required in large numbers. Undoubtedly, the recent consummation of the giant task of opening direct vocal intercourse between the Atlantic and

CARRYING THE TELEPHONE WIRES ACROSS THE WESTERN DESERTS.

Pacific coasts is a national achievement of the utmost significance. In this accomplishment rubber has shared in protecting the workers during their strenuous and even hazardous labors, and now it is helping as nothing else can to carry the currents to their far-flung stations in the manner necessary to efficient service.

SETTING TELEPHONE POLLS AT HUMBOLDT LAKE, NEVADA.

But lest there be any misunderstanding about the figures we have just given in relation to the miles of wire and the number of telephones in this country, the data are from the Bureau of Census and, in the language of the special report, "cover all systems whether operated on a commercial, mutual or coöperative basis, and also all farmer or rural lines. They do not include private lines used exclusively for communication between different rooms or departments of manufacturing or mercantile establishments, hotels, or private residences, unless connected with lines elsewhere through a private or branch exchange. Systems operated by federal, state or municipal governments for communication between different bureaus or offices are not included, nor those owned or leased by steam or electric railroads and operated by them for their own exclusive use."

In substantially all of the exceptions mentioned the bulk of the wiring and the vast number of telephones are indoors and, accordingly, there must be rubber insulation. But even so, we have not exhausted the field of the telephone's usefulness. In every ship of war of the first class the telephone is indispensable and the wires rubber-covered. The biggest of the ocean liners are similarly provided with these instruments, and the latest of the large river boats and coastal steamers have telephones in every stateroom connecting with a floating "central" which, at the dock, can be linked in with the land lines. In these mobile installations rubber plays its vital part.

The military man also owes his debt to the telephone and to rubber, for every one of our forts has its telephone network for vocal communication that the great guns and the submarine mines may do their work more effectively, and for the field service there is likewise an extensive telephone equipment—all of the wires that are intended to be laid upon the ground are rubber-insulated. The telephone has played a prime part in the war in Europe and has made it possible for the directing genius to be safely beyond the reach of the foe's fire and yet in immediate vocal touch with every part of the battle lines. In one case, on a front of only twenty miles, there was run quite a hundred and fifty miles of wire connecting a hundred instruments. This gives us some idea of the extent of this service in view of the stretch of the opposing fronts. For fighting of another sort —battling with fire—the United States has built, so it is said, fully 3,000 miles of telephone line in the national forests during the past year.

Again, for reasons of safety, most of the important mines in this country are provided with subterranean systems of telephones, and, because of the damp atmosphere through which these reach, rubber-covered wires are uniformly employed where

the best service is sought. There are no figures available giving the mileage of the wiring, but such installations are growing rapidly in number and expanse. In addition, the rescue helmets contain telephones, and each of these portable equipments is now provided with about 2,000 feet of rubber-insulated wire. Among these personally-conducted telephone outfits might reasonably be numbered the modified dictaphone for the use of the deaf—a telephone in all essentials, but differing from that ordinarily in use by reason of its greater sensitiveness and certain facilities of adjustment. The other form of the dictaphone is that for inter-office communication and for detective work. In all of these rubber has its part to play.

The wires for the transcontinental line have a diameter of .165 inch. The ordinary city circuit that comes into one's office is about one-third this size, insulated with a coating of soft rubber and then covered by an external finish of braiding.

The method of covering telephone wire first with rubber and then with braiding is an interesting one, but there is hardly space here to describe it in detail. In the process of covering telephone receiver cords a cord braiding machine is used which has 32 carriers, arranged in such a way that the heavy portion of the cord is covered with 32 strands. When the required length has been made an automatic switch mechanism at the back of the machine changes the motion so that two tubular braids are formed, each of 16 strands. These 16-strand braids make the forked connection with the receiver.

It may gratify our national vanity to learn what "The Telephone Review" has recently announced. According to that authority, "The telephone has attained its largest measure of usefulness in the land of its birth. It is sufficient to make but one comparison. In the two cities we are joining together telephonically—New York and San Francisco—there are 685,000 telephone stations—more by 50,000 than the number in London, Paris, Berlin, Vienna, Brussels, Amsterdam and Petrograd combined."

SPEAKING TUBES FOR AUTO RACES.

When engaged in a motor car race where the speed is almost or quite two miles a minute it is utterly impossible for the driver and mechanician to communicate with each other. The terrific speed of the car, together with the continual explosions of the engine's cylinders, makes communication between the two

DRIVER AND MECHANICIAN TALKING THROUGH RUBBER TUBES.

quite impracticable. To obviate this unhappy situation, Mr. E. V. Rickenbacher, who has taken part in a number of these races, has invented helmets to be worn by the driver and the mechanician, which are connected by two rubber tubes, leading from the mouth of one helmet to the ear of the other. In this way, conversation is possible regardless of outside noise. The front of these helmets, where they fit over the face, is made of flexible rubber so that they will fit snugly but comfortably. The illustration shows the inventor and his mechanician equipped with these speaking helmets.

THE GREAT PROBLEM FOR THE GERMANS TO SOLVE.

CERTAIN branches of the German rubber trade affected by the war have turned their efforts to manufacturing enterprises entirely new to them. In fact, German industry in general has adapted itself rapidly to the unusual conditions created by the war. Soon after the outbreak of hostilities many manufacturers recognized that they would not be able to find enough business in their particular line to engross their activities, so they turned their attention to new lines of manufacture. It was not very difficult for most industries to adapt their plants to new undertakings. Furniture factories took up the manufacture of ammunition cases; metal ware manufacturers made supplies for the artillery; embroidery factories made underwear for the troops; hotel kitchens were turned into meat packing plants, etc., etc.

But for the rubber industry the problem was a harder one. The difficulties were great. The government decree prohibiting the use of rubber for other than military purposes alone was an obstacle impossible to overcome. Many articles could have been manufactured and sold in quantities to the troops in the field, but for the lack of raw material. But German manufacturers feel that there is no reason to despair or to take the attitude that nothing can be done. Moreover, raw materials being scarce, or not to be had, much attention is being given to substitutes. Germans have always been noted for their ability to make use of all available materials.

A writer in the "Gummi-Zeitung" looks upon the present situation as offering extraordinary incentives to the discovery and use of substitutes for rubber, which it is now impossible for German manufacturers to get. He writes as follows: "The rubber industry has before it a great and important problem that must be solved. Substitutes can be used to manufacture certain technical articles, which, on account of the prohibition decree, cannot be made of genuine rubber. Of course it will not be an easy matter to break away from routine, but the task, though difficult, is not impossible. Necessity compels; demands must be satisfied. All should make up their minds to get at the problem immediately. A permanent business can be built up in the substitute line—a business that will last even after the terrible war is over. There is a chance for big profits for the firms which enter the field first.

"The field is enormous; the possibilities great. Tent materials, knapsacks, bread sacks, parts of uniforms, helmets, helmet parts, canteens, eating utensils, all sorts of technical articles and fixtures are now in great demand and will continue to be in demand after the war is over. The layman cannot realize how immense the possibilities are. Great things can be done, but we must cut away from routine and not be afraid to take up problems and methods entirely new to us. Every merchant should show interest in articles made of rubber substitutes. There is a great future for them, even after the war is over. Capitalists should remember their former ventures in crude rubber; they should not hesitate to finance good substitute enterprises. We must all apply ourselves to the problem and solve it. The possibilities certainly justify the efforts."

Soft rubber goods to the amount of 2,052,249 pounds were imported into Sweden in 1914, against 2,137,212 pounds in 1913.

What the Rubber Chemists Are Doing.

A NEW VULCANIZATION THEORY.

AN anonymous contributor signing himself "Rubber" in "Le Caoutchouc & la Gutta Percha" of March 15, thinks that vulcanization depends on the colloidal state of rubber. He does not think Ostwald's absorption theory well founded, but thinks Weber's combination theory better.

Sulphur has seven or eight states, but the colloidal state is the only one adapted for vulcanization, and S_8 is the key to vulcanization. Pure gum and sulphur will not vulcanize—in proof of which Stevens and Weber are cited—but with resins and proteins present the conditions are favorable. Stevens concluded that both resins and proteins had a role but did not determine it.

If rubber and resin are heated together, hydrogen-sulphide is generated, as is shown by the fact that paraffine and sulphur produce hydrogen-sulphide. The insoluble matter in the rubber oxidizes sulphur to SO_2—for example, free sulphur and litharge heated in air, or an airy body as light magnesia, generate SO_2. The role of the resins, insoluble oxides and adjusters is to form hydrogen-sulphide and free sulphur. Various bodies transfer S_8 to sulphur with formation of hydrogen-sulphide and SO_2. Late experiments on rubber show SO_2 diffused through gum. Sulphurous-acid and hydrogen-sulphide will react to form water and sulphur. The role of the earthy bodies is to absorb water.

The transformation of S_8 into sulphur requires distribution of certain methylene groups; instead of having all of di-methyl-octadiene there is some octadiene. This reduces it from isoprene caoutchouc to butadiene. Heating in the open shows hydrogen-sulphide, which proves decomposition of methylene. As the heat of formation of hydrogen-sulphide is greater than vulcanization, there is formation of free hydrogen-sulphide, which is occluded, as can be determined by the acetone extract reaction. The hydrogen-sulphide from the decomposition of methylene carries the combined sulphur of the rubber. The above vulcanization theory presents many novel points and probably will not be accepted without considerable discussion.

AN ENGLISH VIEW OF CHEMICAL ANALYSIS.

The "India Rubber Journal" of March 6, in an editorial, criticizes adversely the practice of giving the chemical analysis of rubber. The opinion is expressed that this is no criterion either of its market value or its behavior. It is suggested that the washing loss and usual physical attributes be stated. If the technologists cannot agree what physical requirements are desired, they think the sooner that it is admitted the better. They believe the chemical analysis should give the breaking strain, etc. In this country a realization of the value of chemistry in the rubber business is now shown by the general employment of chemists in all the prominent rubber works. A force of 40 chemists is kept by one large company in a laboratory distinct from any works, employed only on research work.

While it is true that we know so little yet about the chemistry of rubber that we cannot always determine by analysis the value of the sample, yet it is realized that many useful things can be so determined. It is quite possible to determine by analysis the probable shrinkage, as this consists of water and dirt. Both of these can be determined by analysis, but the washing does not always take out all the dirt, so that the analysis may not agree with the washing. The analysis is perfect but the washing is not. The resin can also be determined with accuracy and its nature shown. It is generally admitted that a large quantity of resin is harmful to the rubber as such, although its qualities may be desired for some work or purpose. The rubber itself may also be determined as to amount but not so accurately as to quality. Of late, however, it has been shown that small quantities of the insoluble colloids found in some samples greatly affect its quality—usually favorably. All this shows progress and indicates that eventually we will be able to determine the value of rubber by analysis when we know more about rubber chemistry.

SOME SYNTHETIC PATENTS.

Matthews and Strange received British patent No. 24,790 in 1910 for the treatment of synthetic caoutchouc with liquid SO_2. This we have noted before, but patent No. 2,070, of 1914, has been issued to them for a modification of the same process and has seemed to attract considerable attention, as it has been noted in many of our contemporaries.

Fritz Hoffman has assigned to the Synthetic Patents Co.—which holds the American patents of the Beyer company, of Elberfeld—a patent on treating certain synthetic rubbers with piperidine or its homologues, and then vulcanizing with sulphur as usual.

EXPERIMENTS.

W. H. Caspari has contributed an article—published in the "Journal of the Chemical Society" (England), for February, 1915, page 162—which relates a number of experiments in precipitating rubber by alcohol or acetone from solution in benzol. The experiments showed that one gram of caoutchouc when dissolved in 40 c.c. of benzol precipitated when 15 c.c. of alcohol was added, forming 148 grams of precipitation. At higher temperature, the necessary proportion of alcohol rises. Any little moisture present produces precipitation much quicker. In 43 vols. alcohol to 100 of benzine at 20 degrees C. caoutchouc was practically insoluble. In 80 vols. acetone to 100 of benzine at 20 degrees C. caoutchouc was practically insoluble.

DECISION ON RECLAIMING PATENTS.

An important decision has been rendered by Judge Clark in the federal court in Cleveland, Ohio, in a suit brought by the Philadelphia Rubber Works Co. against the Portage Rubber Co. for infringement of the Marks patent No. 635,141.

It appears that in 1900 Arthur H. Marks assigned his patents on reclaiming, which comprise what is usually known as the "Alkali Process," to the Diamond Rubber Co. The Diamond in turn assigned to the Alkali Rubber Co., reserving the right of action and any awards in the suit against the Calumet Tire & Rubber Co. then pending. The Alkali Rubber Co. assigned to the Philadelphia Rubber Works Co. in 1911.

The Portage Rubber Co. alleged first that the Marks patent was invalid and secondly that it did not infringe, as it used the Wildman and Christy process—patent No. 993,485. The decision sustained the contentions of the Portage company on both counts.

Viewing patent No. 249,970 granted to N. Chapman Mitchell, of Philadelphia, the judge decided that it was an anticipation of the patent in suit. Of course, this is the court of first instance and an appeal will probably be taken.

THE PERMEABILITY OF RUBBER TO CARBONIC ACID.

In the "Chemiker Zeitung," 1914, page 1249, V. Rodt discusses the diffusion of carbonic acid through rubber. He finds that a pure vulcanized rubber tube filled with the gas will collapse if kept in the air for from 12 to 24 hours and this collapsing is greatly hastened if the tube is immersed in water.

But if the gas inside and the air outside are perfectly dry there is no collapse in one month's time. Carbonic acid is not absorbed by rubber. With water and carbonic acid in contact with rubber only 6.3 per cent. was absorbed in 25 days, and the water amounted to 6.12 per cent. so that only eighteen hundredths of one per cent. of carbonic acid was absorbed. The rapid diffusion

of gas through a rubber septum is due to the high solubility of the gas in water and the "hygroscopic" nature of rubber.

These findings do not agree with those of F. Steinitzer and P. Phillips as reported in THE INDIA RUBBER WORLD of March, 1915, page 323. The latter authors found that rubber did absorb carbolic acid and seemed to have proved it satisfactorily.

F. Frank and E. Marckwald in a report in "Kautchuk Zentralstelle" of April, 1914, assert that the nitrogenous portion of rubber is a true protein, giving many reactions in proof of this. In THE INDIA RUBBER WORLD of October, 1914, page 18, Spence and Kratz are reported to have found that the nitrogenous portions of rubber were of the nature of gluco-proteids.

DETERMINATION OF SULPHUR.

In the "Analyst," 1915, page 11, Gaunt describes a method of determining sulphur in rubber by means of a combustion tube, in which a sample—0.2 gr. to 0.3 gr.—is placed. The tube is drawn out and connected with absorption flasks containing H_2O_2. Dry oxygen is run through while heating the tube and the $S.O_2$ produced is absorbed by the H_2O_2.

If the rubber contains fillers, determine the sulphur in those also separately. The determination is said to be made in 90 minutes and agrees with the Carus method.

POLYMERIZED OILS FOR FACTICE.

R. S. Morrel, in the "Journal of the Society of Chemical Industry" for February, 1915, page 105, gives results of a study of the polymerization and thickening of a number of oils, such as tung oil—or, as called here, China wood oil—linseed, poppy oil and others. These oils can all be thickened into plastic masses. China wood oil appears to be the best.

RECENT CHEMICAL PATENTS.

W. H. Perkins and F. E. Matthews have received British patent No. 15,049 of 1913, for converting butadiene and homologues into rubber by the use of oxidizing agents.

The Hood Rubber Co. has been assigned United States patent No. 1,106,290, which claims the process of passing the vapor of iso-proply-ketone over heated aluminum silicate at a temperature of between 400 and 600 degrees centigrade.

Fritz Hoffman and Kurt Gottlob, of Elberfeld, Germany, have received United States patent No. 1,130,903, which seems to claim the use of piperidine or methylene base in vulcanizing synthetic caoutchouc.

Isoprene compound with $S.O_2$ is described in "Chemical Abstracts," 1915, page 623.

M. L. Bouchet in "Comptes Rendus," 1915, page 240, has attempted to measure the expansion or deformation of vulcanized caoutchouc under the influence of an electrostatic field. Fontaine, in 1831, found that a Leyden Jar expands during the charge.

MORE ABOUT RUBBER FOAM.

Professor Perrot, a French chemist, has been devoting himself to the study of rubber foam, that curious discovery which was described in the January issue of THE INDIA RUBBER WORLD.

Rubber foam, or *caoutchouc mousse*, as it is sometimes termed, was heralded principally as a substitute for air tubes in automobile tires, but Professor Perrot has been studying it from another point of view and claims to have discovered that it is superior to any known heat insulation. The best heat insulation now used is cork pulverized and agglomerated with casein, but where a cubic yard of this weighs close to 300 pounds, the same quantity of rubber foam only weighs about 116 pounds, and its thermic conductibility is much lower than that of the cork insulation. Further, the cork compound is subject to rapid putrefaction, against which it is difficult, in fact impossible, to protect it.

In addition to its applicability to automobile tire construction, it is stated that rubber foam can be used in making life-saving mattresses for marine use, air tight compartments for life boats, linings for telephone booths, noiseless and resilient carpets and insulation for refrigerators and refrigerating machinery.

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF RUBBER AND MANUFACTURES OF.

ARTICLES.	February, 1915. Quantity.	February, 1915. Value.	Eight Months Ending February, 1915. Quantity.	Eight Months Ending February, 1915. Value.
India rubber, etc., and substitutes for, and manufactures of:				
Unmanufactured—				
Balata .....*pounds..free*	209,629	$64,804	1,938,142	$763,200
Guayule gum	713,040	201,760	2,844,734	828,544
Gutta jelutong	1,928,264	87,864	10,219,462	483,447
Gutta percha	125,351	13,583	972,061	142,479
India rubber 15,477,653		7,593,737	90,481,060	42,285,467
India rubber scrap or refuse, fit only for remanufacture	441,989	38,710	7,289,277	487,761
Total unmanufactured.	.....	$8,000,458	.....	$44,990,898
Manufactures of—				
Gutta percha .....*dutiable*	.....	$106	.....	$10,293
India rubber ..... "	.....	57,630	.....	610,464
Total manufactures of.	.....	$57,736	.....	$620,757
Substitutes, elasticon and similar .....*dutiable*	.....	$2,056	.....	$24,559

IMPORTS OF CRUDE RUBBER BY COUNTRIES.

From:				
Belgium .....*pounds*	.....	.....	1,902,370	$950,872
France	33,675	$17,067	612,889	257,033
Germany	.....	.....	732,118	358,088
Portugal	.....	.....	1,798,119	538,996
United Kingdom 10.581,465		5,345,432	35,849,563	18,329,034
Central American States and British Honduras	67,782	35,051	389,607	168,540
Mexico	43,455	19,225	1,284,872	487,497
Brazil	3,483,244	1,411,623	30,175,069	12,406,174
Other South America.....	343,127	173,039	2,465,507	1,095,371
East Indies	26,420	11,816	12,746,417	6,147,760
Other countries	898,485	580,484	2,524,529	1,546,102
Total 15,477,653		$7,593,737	90,481.060	$42,285,467

EXPORTS OF AMERICAN RUBBER GOODS.

India rubber, manufactures of:				
Scrap and old.....*pounds*	123,787	$12,608	1,352,641	$139,807
Reclaimed	524,095	65,039	3,904,007	528,440
Belting, hose and packing...	.....	144,777	.....	1,240.296
Boots and shoes—				
Boots .....*pairs*	42,818	97,026	298,011	671,358
Shoes	130,443	85,281	1,773,396	1,838,999
Tires—				
For automobiles	.....	351,546	.....	2,260,103
All other	.....	24,769	.....	248,277
All other manufactures of..	.....	276,749	.....	1,869,859
Total	.....	$1,057,795	.....	$8,797,139

EXPORTS OF AUTOMOBILE TIRES BY COUNTRIES.

Tires for automobiles:				
France	.....	.....	.....	$6,090
England	.....	$189,481	.....	1,081,141
Canada	.....	56,326	.....	414,392
Mexico	.....	4,161	.....	65,017
Philippine Islands	.....	32,086	.....	157,247
Other countries	.....	69,492	.....	536,216
Total	.....	$351,546	.....	$2,260,103

EXPORTS OF FOREIGN MERCHANDISE.

India rubber, etc., and substitutes for, and manufactures of:				
Unmanufactured—				
Balata .....*pounds..free*	111,580	$33,676	769,755	$300,139
Guayule gum	.....	.....	.....	.....
Gutta jelutong	.....	.....	.....	.....
Gutta percha	.....	.....	3,460	1,488
India rubber	749,195	337,061	4,847,570	2,590,040
India rubber scrap or refuse, fit only for remanufacture	.....	.....	.....	.....
Total unmanufactured.	.....	$370,737	.....	$2,891,667
Manufactures of India rubber .....*dutiable*	.....	$33	.....	$5,442

The Cole Course Protractor is the name of a recent invention, which, in connection with a map or chart, enables the navigator to quickly and accurately map out a safe course. This instrument is made of polished brass, a circle of rubber being attached to the under side of the base to prevent slipping on the chart. [Marine Compass Co., Bryantville, Massachusetts.]

New Devices for Rubber Testing.

By A. F. Shore.

VULCANIZED rubber is divided into two general classes that bear the trade names, hard rubber, or vulcanite, and soft rubber. Under the last-named class is grouped an infinite variety of goods that vary greatly in hardness and in elasticity. Many instruments have been designed to measure their physical properties.

Difficulty is, of course, experienced in this because of wide variation in structure and in chemical composition as well as frequent exaggeration of one property at the expense of the other. The factors thus concerned are what might be termed fibrous as opposed to non-fibrous formations, extreme brittleness, elasticity or plasticity. The range is so wide that it is difficult to make a single instrument which in its range of sensitiveness would cover it entirely.

Crude rubber shows unexampled elasticity, but little hardness; hard rubber, any degree of hardness up to glass brittleness or any degree of elasticity down to that common to other brittle hard bodies.

It thus follows that an instrument suitable for measuring the hardness of soft rubber, will be useless for brittle hard rubber; also, one that will determine elasticity of such soft robber will be useless on the more brittle hard rubber. To successfully measure the properties named, the Elastometer for elasticity, and the Durometer for hardness, have been devised by the Shore Instrument & Manufacturing Co.

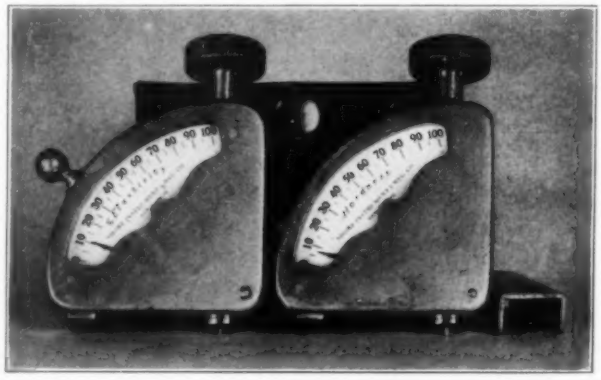
The Durometer when applied to soft rubber indicates its resistance to the penetrating force of a blunt pin. This pin projects from the instrument three thirty-seconds of an inch and is held by a carefully calibrated spring. On the harder grades it is pushed in most of its length against the tension of the spring. The extent of the compression, and, conversely, the deformation of the rubber, are indicated on the dial, expressing units of hardness. The size and position of these units, since the value 50 is the average hardness for soft rubber, have been carefully chosen and obviously will remain constant in the future.

With the Durometer is provided a standardized spring balance upon which the hardness it represents is marked and with which it is checked up from time to time, as is customary with all accurate testing instruments. The hardness of crude rubber varies all the way from 25-30, on the scale adopted, to 75-80 after vulcanizing. When a hardness of 70 is exceeded, there is obviously a rapid drop of elasticity, but an increase in strength or resistance to stretching, so that it is safe to say 70 is ordinarily the limit of hardness where the service value of the rubber depends equally upon the accompanying elasticity.

Where rubber cushions have to withstand the greatest possible load, as in solid tires, the highest hardness is called for, with the necessary quota of elasticity. Where the rubber itself is not depended upon for sustaining loads, as in pneumatic tires, the rubber used is given a more moderate hardness, with due compensation by greater elasticity. The hardness measure thus may give information as to the suitability of vulcanized rubber for various purposes. This means that in the cheapest solid tires, for example, the desired hardness will be shown, but there would be a lack of elasticity, and such a tire would fail to give the desired cushion effect and soon wear out.

Rubber may be said to have a total value. This would be the figures representing hardness and the elasticity multiplied together. As an example, a solid tire showing a hardness of 70 units and an elasticity of 55 per cent., would have a total value of 70 times 55, or 3,850, which would be considered a high figure. Another solid tire, having a hardness of 70, but an elasticity of only 30 per cent., would show a total value of 70 times 30, or 2,100.

In general practice, however, it would not be proper to refer indiscriminately to rubber as having a total value, for a given product may be obtained in widely different ways, as for example, one rubber is 50 hard and has an elasticity of 70, while another is 70 hard and has 50 per cent. elasticity. The product in each case is the same, but the rubber is adapted for widely different purposes. The former will be better for pneumatic tires, and



THE SHORE ELASTOMETER. THE SHORE DUROMETER.

the latter for solid tires. When hardness and elasticity measurements are made to ascertain the total value of the rubber, it is necessary to state the specific degree of hardness, and also the percentage of elasticity.

Elasticity is more difficult to measure than hardness, because its manifestations are not the same under different methods of testing.

The simplest though not the most convenient way of testing the elasticity is by stretching a band of uniform thickness. Another way is to drop a ball on a sample of rubber from a certain height and note the rebound. The rebound values will not agree perfectly with the stretch values, for conditions enter the rebound test, in regard to time and distance penetrated, which would not enter in a stretch test.

In testing the elasticity of rubber with an instrument that is to be applied to the surface without damage, the stretch test is most closely imitated by one involving a tearing or cutting stress. Rubber having 100 per cent. elasticity will resist the penetration of a knife or a sharp point for a given depth without cutting in the slightest degree. Should, however, the elasticity be somewhat imperfect, the cutting will take place to the extent that the elasticity is deficient, until at last the elasticity is so low at a given hardness that cutting will occur almost the entire distance penetrated. Cutting, after all, in the absence of a saw action, consists of imposing a stress on the fibers in contact with the edge, which will more readily be overcome as the rubber fails to elongate or stretch away from it. The Elastometer has been devised by applying this principle. The action is as follows: A medium sharp pin, three thirty-seconds of an inch long, is locked and caused to penetrate its entire length into the rubber. After a few seconds the pin is unlocked and allowed to be pushed back by the rubber, according to its power to recover its original form or its elasticity. The pin actuates a very delicately balanced indicating needle, reading in percentages of elasticity. If it is

pushed back only half way, 50 per cent. is shown; if it is pushed back all the way, as when the rubber suffers no injury at all, 100 per cent. elasticity is shown. The depth the pin is required to penetrate and the sharpness of its point have been determined by experiments. The most elastic rubber, according to the stretch test, just barely escapes cutting.

Soft rubber will lose about 14 per cent. of its hardness when the temperature is raised from 32 to 212 degrees. Such heating does not materially decrease the total value of the rubber in so far as its stress and deformation resisting properties go. This is explained by the fact that there is an increase of elasticity at about the same rate as there is a decrease in hardness. The only danger that would appear to exist is where the rubber is exposed to friction with other rubber. The heat increases the cementing affinity and causes rapid wear. Solid tires having the right proportion of hardness and elasticity at normal at-

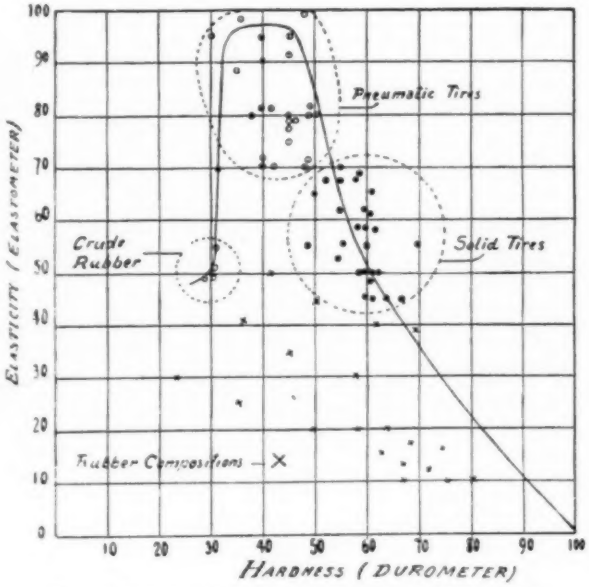


CHART SHOWING TESTS OF ELASTICITY AND HARDNESS.

mospheric temperatures may become too soft at 212 degrees, and show compression, internal friction and further development of heat. On ordinary road temperatures, however, in hot weather, the efficiency of the rubber should not visibly be impaired.

When rubber is stretched its elasticity may or may not be constant when the duration of the stretch varies. In other words, if rubber is stretched only for a moment it may show a higher elasticity or hardness than if it were stretched for some length of time. Consequently, in the less elastic rubber goods the permanent set will be developed under the continued pressure of the indicating pin. This is shown by the gradual recession of the indicating hand.

To meet this peculiarity in testing, a special holding stand has been provided. The same stand also serves to avoid possible side friction on the sensitive pin, due to not holding the instrument straight when used free handed.

The following table of rubber values may be of interest in this connection:

AVERAGE AND EXTREME VALUES OF PLIABLE RUBBER ARTICLES.

	Hardness.	Elasticity.	Total.	Scleroscope.	Percentage of Stretch.
Lowest	22	10	620	30	50
Average	50	65	2,620	58	255
Highest	70	100	4,800	100	1,500
SOLID TIRES.					
Low	52	45	2,900	55	500
Average	60	60	3,600	61	650
Highest	70	70	4,000	70	750
PNEUMATIC TIRES.					
Low	35	65	3,000	..	400
Average	42	80	3,360	..	800
Highest	70	100	4,800	..	1,000
RUBBER HEELS (some only hard compositions).					
Low	55	5	425	..	....
Average	74	28	1,683	..	....
Highest (comp.)	85	60	3,600	..	....
RUBBER BANDS.					
Low	35-45	80-95	.....	75-85	700-1,500

Study of the figures in this table will disclose several interesting facts, among them a limit of what has been referred to as the total value of rubber. The two gages here described have each a scale of 100 units, and if 100 is multiplied by 100 a product of 10,000 will be obtained. In rubber this is not possible. The highest value found in the course of our experiments was in a pneumatic tire, which showed a hardness of 48 and 100 per cent. elasticity, which gives a product of 4,800. The highest value noted in solid tires of a high grade was only 4,000, thus showing that too much vulcanizing or compounding deprives rubber of elasticity and toughness. The limit appears to have been reached in the processes hitherto used for solid tires. Just to what extent rubber can be vulcanized or compounded without materially detracting from its characteristic elasticity, which is here represented as 100 per cent., remains to be shown. The many experiments upon which these figures are based would appear to indicate a total value of 5,000 as about the limit, or just half of the range of measurement provided for by the two instruments.

RUBBER PLATES FOR IRONCLADS.

THIS publication has referred a number of times to the suggestion made by various people interested in naval construction that the resistance to attack of an ironclad would be greatly increased by a suitable covering of rubber. The claims made by Mr. Bowler, an English inventor, for the rubber plates which he had devised for application over the iron plates of warships were mentioned on page 290 of the February issue. He has been trying to persuade the British Admirality to experiment, at least, with this method of rubber protection. In a recent number of a British daily, he cites further instances coming under his own observation of the superior resistance of rubber to the effect of explosions over any other material.

"In 1906," he writes, "I witnessed the effect of an explosion of about 200 tons of dynamite at Bramfontein, Johannesburg. It occurred on a siding used for shunting dynamite-laden trucks. Special precaution had been made at the head end in a rubber buffer, so that if the trucks did run loose the rubber would lessen the shock and perhaps prevent an explosion. The trucks dashed with such force into the buffers that a terrific explosion took place, killing more than 300 people. Trucks and siding were blown into the air, and on examining the spot half and hour after the explosion I noticed that nothing was left but the rubber buffers, which remained intact, barring some rents and cuts made by flying projectiles and scorching by the heat. This was proof of the extraordinary resisting powers of rubber.

"In an experiment made to show the recoiling strength of rubber a piece of rubber 2 inches thick and 1 foot square was laid under a steam hammer and a 6-inch round shot was placed on it. The hammer fell with tremendous force and broke the shot to pieces, while the rubber remained elastic and unimpaired."

The estimated number of automobiles owned in the United States in 1914 was 1,754,570. Assuming that these cars average not less than five tires each during the year, 8,772,850 tires were necessary for their equipment.

The Rubber Joke.

IN "Gum-Elastic and Its Varieties, with a Detailed Account of Its Application and Uses," which was not only the first rubber book published in this country but which still remains the most interesting contribution to our rubber literature, Charles Goodyear gave a list of 400 different articles that could be made from this substance. Considering the fact that rubber

THE RUBBER PLATE LIFTER.

had but recently come into use, it was a list of extraordinary completeness. Though it was compiled 62 years ago, almost every rubber development that has taken place since was prac-

THE EFFECT OF THE DANCING PLATE ON THE UNINITIATED.

tically mentioned in that list—with one exception. It said nothing whatever about rubber jokes. But this omission was quite natural under the circumstances, for, in the first place, Mr. Goodyear himself was a man of an exceptionally serious cast of mind. Moreover, he lived in a very serious age which had not yet begun to cultivate the lighter side of life.

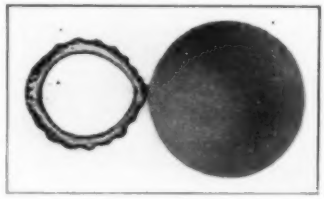
But times have changed, and man no longer looks upon himself as simply a working animal. He insists upon being amused. Hence, among other forms of entertainment, the rubber joke.

The rubber joke is really a logical development. The very nature of the substance—its elasticity, plasticity, its ability to undergo all manner of distortions and contortions and then return serenely to its original form, and particularly its possibilities in the way of pneumatic effects—its ready conveyance of air pressure—all make it a wonderfully effective agency for the players of pranks, and especially for that arch humorist known as the practical joker.

It probably would be stretching the subject a little to say that rubber jokes are as many as the sands of the seashore, but it is quite true that if they were all collated they would fill a very sizable catalog. And the number is being added to every week. This dissertation is not intended as an inventory; but its purpose is simply to describe a few of the more popular (or more unpopular—it depends upon which end of the joke you happen to be) of the various forms that rubber humor takes. Perhaps the most effective of these rubber jokes are those that are provided with a bulb and tube for accomplishing pneumatic effects—with results that are often startling. One of the most noteworthy of this class is the plate lifter. This consists of a small, thin rubber bag which when uninflated has hardly any perceptible thickness. It is connected by a fine rubber tube several feet in length with a rubber bulb. Its use is after this wise: Before the diners are invited to take their seats, the bag is slipped under the table-cloth in front of the intended victim, under the place that his plate will naturally occupy. The tube goes invisibly under the table, across to the other side, where the operator is to be located. By pressure on the bulb the bag under the table-cloth is inflated and the plate is made to rise and fall, gently or with violent movement according to the nature of the pressure on the bulb. It requires no very vivid imagination to see what can be accomplished by an apparatus of this sort on a suitably susceptible person.

Instances have been cited where club men have played this prank on some fellow member who was known to be unduly addicted to the absorption of stimulating beverages, with the result that the victim, after watching the various dishes in front of him wave and wobble and jump and dance during a whole dinner, has fled from the banquet board and made his way with all possible speed to the nearest Keeley cure.

Another rubber joke of the pneumatic class consists of some sort of button-hole ornament connected by a small, almost imperceptible, tube with a bulb carried in the pocket. This ornament may be in the form of a baby's face, which, on the pressure of the bulb, is seen to protrude its tongue most indelicately and is heard to wail most plaintively; or possibly the ornament may be a design filled with little apertures and the bulb may be filled with water, with the result that when some admiring friend stops to look at the unusual ornament he receives a gentle April shower in his face. That suggests another type, which we may call the aqueous rubber joke. A second good illustration of this kind is the sprinkling ring. This consists of a hollow rubber ball large enough to be held conveniently in the hand, to which is attached a hollow metal ring with fine openings at the top. The ball is filled with water and the ring slipped over the finger. It is shown to some friend and as he is viewing it with interest the ball is squeezed and he



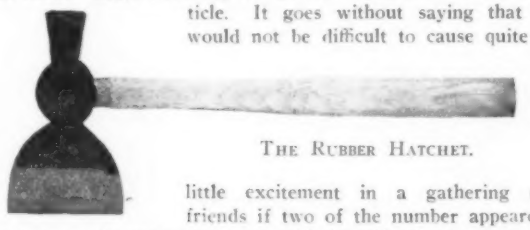
THE SPRINKLING RING.

GETTING A SHOWER FROM RING WITH RUBBER BALL ATTACHED.

gets a facial inundation. These water jokes are supposed to particularly endear one to one's friends, especially where the friends have to wear moist collars during the remainder of the day.

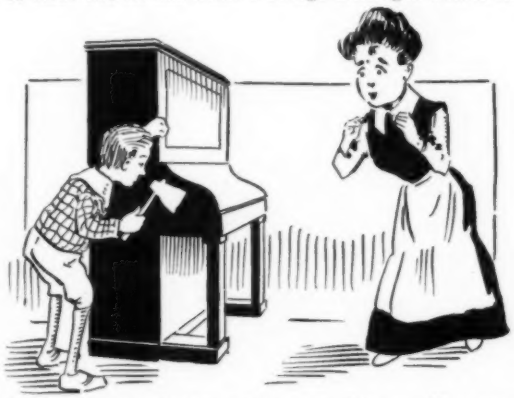
Another classification of the rubber joke might be called the edged tool variety. These are not innumerable, but they cer-

tainly are numerous, and they counterfeit all tools that have sharp and dangerous points and edges. For instance, there is the rubber razor. If a young man wants to attract considerable attention in the boarding house parlor he can jump to the middle of the floor and announce that his life has been a failure and he proposes to end it forthwith, and then gash at his throat with one of these rubber razors. It is quite evident that he would create considerable commotion—especially in the breast of his landlady if he were somewhat in arrears for board. Then there is the rubber dagger, looking for all the world like the real article. It goes without saying that it would not be difficult to cause quite a



THE RUBBER HATCHET.

little excitement in a gathering of friends if two of the number appeared to get into an altercation and one suddenly pulled forth this shining weapon and proceeded to plunge it rapidly into the other's front, back, side or some other suitable location. The rubber hatchet belongs to the same category. Arm a small boy with one of these and let him make a savage onslaught with it on the



CHOPPING THE PIANO—WITH THE RUBBER HATCHET.

choice marble statuette in the parlor, or on the piano, and it is obvious that he would have his mother in a state of mind.

Again there is the rubber tack. If a person wishes to attract favorable attention to his general imperviousness he can put a few of these, point up, on a table, with his friends seated around, and then bring the palm of his hand down with great vigor on the upturned points. He can then gather in the tacks and go whistling away, to the great perplexity, if not admiration, of the onlookers.

Rubber jokes of this variety are often used as nerve testers in initiating new members to secret organizations. One form is a bed of spikes with sharp steel points—made of soft rubber. The novitiate is obliged to remove his shoes and stockings and then is tossed upon the glittering points. As a matter of scientific fact, the efficiency experts have employed rubber deception in making their tests. One test of a man's nerves is to suspend a pane of glass from the ceiling, have him stand with his face close to it on one side while the experimenter strikes the pane from the other side with a hammer. It is a rubber hammer, and the glass, instead of being shattered into a thousand pieces, simply oscillates gently in the air. But if the subject of the test can stand the experience without wincing he shows that his nerves are in good condition.

There are other rubber jokes, not quite so sanguinary as some of those cited above, which deceive and excite wonderment without causing either alarm or mental anguish. As an illustration of this kind is the rubber dumb-bell, which looks as if it were made of solid iron with each end weighing 100 or 200 pounds, and yet the athlete who is giving an exhibition of his powers can hold this dumb-bell indefinitely at arm's length or toss it easily from one hand to the other and perform with it various feats of Samsonian strength. It behooves him, however, not to let it fall to the floor, for it is likely to rebound as high as his head, for the two massive iron ends are simply inflated rubber balloons and the entire dumb-bell weighs rather less than 3 ounces.

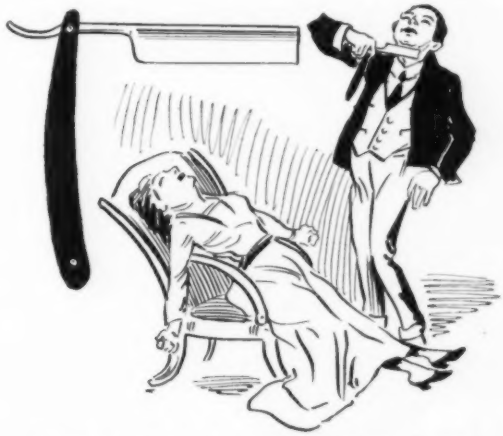
The rubber pencil is another joke of an innocuous character. It looks like an ordinary lead pencil sharpened at both ends and supplied with a metal cap which covers the end not in use. One end has good lead. The owner uses this to write with and then, putting the metal cap over it, passes the pencil to a friend to use. He gets the rubber end and when he tries to write finds the fictitious lead bending in all directions and making no mark. He may make several attempts before he discovers what the difficulty is. And then there are other pencils which have perfectly good lead but a rubber joint just above the lead which makes the pencil double up when one tries to use it. And there are perfectly good and honest looking pens constructed on the same aggravating principle.

But this was not to be an inventory. These samples are enough to show the nature of the rubber joke. Now the interesting question arises—How much of a business does the rubber joke constitute? How many people are engaged in its sale?

THE RUBBER DAGGER.

Where do they find customers? And what volume of this rubber humor finds a market in the course of a year?

There are about 100 jobbing houses in the United States which sell these rubber jokes—not exclusively, of course, but with various other novelties. The retail dealers, including distinctive novelty stores, of which there are some in all large cities, and



HARMLESS SUICIDE—WITH THE RUBBER RAZOR.

including also the big department stores—all of which, practically, carry these articles in some department, either among the rubber goods or on the novelty counters—probably number 5,000 in this country. This would take in all those people who have booths and counters at the summer beaches, at the autumn fairs and at the carnivals and mardi gras held at different times in various places. While these humorous rubber goods are sold in all the large cities of the country, their best market is found

in New York, Chicago and St. Louis. Whether this is to be attributed to a keener ability to see a joke on the part of the citizens of these three cities, or to a less serious type of mind, may be left to the psychologist to determine, but these three cities not only surpass the others in the number of novelty stores where

A RECKLESS BLOW ON SHARP POINTED TACKS—OF RUBBER.

goods of this kind can be obtained but they support a larger number of street vendors who sell these humorous rubber conceits and demonstrate them as they sell.

These street salesmen constitute the main channel through which these rubber mirth-makers reach the ultimate consumer. It is estimated that there are a thousand of these itinerant merchants in New York and probably 15,000 in the whole country. Adding this army of street vendors to the more dignified dealers who offer their wares from behind a counter and under shelter, there are probably 20,000 honest citizens who are engaged in supplying the great American public with these rubber contributors to the joy of living. Formerly, before the subjects of the Kaiser had so many other things to occupy their minds, many of these conceits came from Germany. But now we must rely for our supply on home production. There is no mill in the United States devoted exclusively to the manufacture of rub-

LIFTING A THOUSAND POUNDS—ALL AIR.

ber jokes, but there are several that turn them out as an incidental but thoroughly established line of manufacture.

As to the value of these articles sold in this country in the course of a year, one big wholesaler puts it at $2,000,000, and probably he is not so very wide of the mark. Possibly some one might say that this seems like a large sum to spend for articles made just for fun, but when one reflects how large a proportion of the product of the *Hevea Brasiliensis* goes into garments, shoes and hot water bottles for the comfort of the body, there seems full justification for the question—Why should not a small fraction of this product be turned into forms that contribute to the pleasurable activities of the mind and to the general gaiety of the nations?

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

A firm in Spain is in the market for materials for manufacturing rubber stamps. Report No. 16,148.

A business man in Spain requests samples, prices, etc., on electrical supplies, including insulated wire. Report No. 16,233

A dentist in the West Indies considers the establishment of a dental supply depot and wishes correspondence with manufacturers. Report No. 16,253.

A firm in Russia also desires similar correspondence. Report No. 16,255.

A Swiss firm is in the market for refined Pará rubber for the manufacture of a solution to be used in repairing tires. Report No. 16,263.

A business man in France desires to secure agencies to represent American manufacturers and exporters of rubber sponges and articles made of hard and soft rubber, to be used in connection with surgical, electrical and similar instruments. Report No. 16,288.

A firm in Russia wishes to be placed in communication with American exporters of raw rubber. Report No. 16,341.

A business man in Italy desires correspondence, in Italian, with American exporters of rubber. Report No. 16,374.

Prices and quotations c. i. f. Russian ports are requested on rubber goods for surgical and hygienic purposes. Report No. 16,183.

An opportunity is reported from Switzerland for the sale of solid rubber tires. Report No. 16,413.

A firm in Italy is in the market for large quantities of articles of rubber, gutta percha, etc. Report No. 16,432.

A business man in France desires to purchase rubber sponges, gutta percha and hard and soft rubber articles. Report No. 16,438.

A company in the United States is in the market for supplies to be used on a rubber plantation in the East Indies. Report No. 16,457.

A foreign business firm desires to purchase large quantities of red rubber bands for preserve jars and glasses. Samples may be obtained from the Bureau of Foreign and Domestic Commerce, Washington. Report No. 16,535.

A RUBBER PRODUCING SHRUB IN AFRICA.

An English reader sends this publication a letter received from a friend who has recently been exploring certain tracts in Africa. One paragraph is of particular interest, as it describes a shrub which the explorer says yields "rubber gum equal to any plantation product." The paragraph is as follows:

"I have for two months past been exploring several hundred square miles of the hinterland, all covered with a wild shrub from which can be pressed (with a sugar mill) rubber gum equal to any plantation product. The supply seems to me to be almost unlimited, the cost of the right to cut the shrub a mere trifle, and so also the cost of pressing. I reckon the gum all together will cost at the coast less than half that of plantation."

The Tayson Rubber Co., of Wooster, Ohio, is now manufacturing "Tayson" tires.

THE EDITOR'S BOOK TABLE.

EXPORTERS' ENCYCLOPEDIA, 1915. ELEVENTH EDITION. COMPLETE EXPORT SHIPPING GUIDE. Published by the Exporters' Encyclopedia Co., of New York City. [8vo, 1,150 pages, cloth bound. Subscription, $7.50, including monthly corrections, and the "Exporters' Review" for the calendar year.]

AS may be inferred from its title, this publication contains all possible information concerning the export trade. It covers all the countries of the globe. It gives all steamship lines and their agents and all information concerning shipping routes. It covers bills of lading, invoicing of merchandise, foreign equivalents and currencies, insurance, banking, protection of trade abroad, consignment of goods; in short it gives all the information necessary to those who wish to export or are already engaged in exporting. The Exporters' Encyclopedia answers every question that an exporter may be confronted with. The shipper needs only to know the country to which shipment is to be made—the "Index of Countries" in the Encyclopedia tells him where to find the entire story for that country. It is, in fact, an invaluable book of reference for every firm or company doing business, large or small, with foreign countries.

SOUTH AMERICA AS AN EXPORT FIELD. BY OTTO WILSON, commercial agent of the Department of Commerce, Government Printing Office, Washington, D. C. [8vo., 216 pages. Paper cover.]

The Department of Commerce, Bureau of Foreign and Domestic Commerce, has published a hand-book on "South America as an Export Field," which contains much information for those who are interested in the possibilities of South America as a market for the products of United States industries. Of special interest to rubber men is the description of the important role rubber plays in economic conditions in certain South American countries. He shows how the rubber business affects the purchasing capacity of a large section of Brazil, where the rubber gathering industry is the greatest source of wealth.

Business is practically all based on credit. The concessionaire, who operates a tract of land under government franchise, advances supplies for a whole season to his employes, or *seringueiros*, charging them against rubber which they are to collect and turn over to him. Usually the concessionaire obtains these supplies on credit from an importer at Manáos or Pará. To obtain this credit the concessionaire has to pledge to the importer the whole of his rubber crop. The importer, in turn, receives his merchandise on credit from foreign mechants, often rubber speculators. So that the prosperity of trade in the rubber districts of Brazil is directly dependent upon a successful rubber season. The high cost of rubber production in Brazil is largely due, according to the author, to the high prices of all imported commodities in that country, where many articles often cost five or six times as much as they do in the United States.

Brazil produces considerable quantities of cotton, especially tree-cotton, most of which is exported to England and Portugal.

NEW TRADE PUBLICATIONS.

W. G. BROWN & Co., of Cincinnati, dealers in crude and reclaimed rubber, are continuing for 1915 the distribution of small monthly calendars. Each of these has, besides the days of the month, a 5 x 4 inch picture, in colors, showing sportsmen indulging in the variety of sport most appropriate to that particular month.

The Firestone Tire & Rubber Co. has lately issued a very complete and handsome book on "The Care of Tires." If used as a text book by the consumer and its instructions carefully followed, the result at which it aims—the elimination of unnecessary tire expense—would doubtless be arrived at. This book, which is freely illustrated with reproductions from actual photographs, shows conditions caused by every kind of tire abuse and is the result of much experience and many years of research. Copies will be furnished, free, on request, not only to users of Firestone tires but to car owners generally.

E. H. Sargent & Co., of Chicago, importers and makers of laboratory supplies, have just issued a very complete catalog in which all the latest appliances for use in the rubber mill laboratory are illustrated.

"A LITTLE JOURNEY TO THE HOME OF COLONEL COLT"

Among book-worms of the higher sort, Boswell's "Life of Samuel Johnson" has always been looked upon as the most notable biographical contribution to literature; all of which is undoubtedly true. But it is not half so readable as the biographical sketch of Colonel Samuel P. Colt which appears in the April number of Elbert Hubbard's "Fra," and fills nine pages of that lively magazine. Albeit this sketch is done in the breezy style that distinguishes Elbert Hubbard from all other contemporary wielders of the pen, it is a faithful portrait and will be much enjoyed by the colonel's innumerable friends.

BOOKLET ON "CABLE-STRUCTURE" TIRES.

A red motor car, with a load of happy passengers speeding through an enormous "non-skid" tire, artistically enlivens the cover of a neat booklet issued by the Mansfield Tire & Rubber Co., of Mansfield, Ohio, to describe the merits of "Cable-Structure" casings, and also the special qualities of the "5-X" inner tubes which are manufactured by that concern.

THE "KNU-SHU" HANGER.

The United States Rubber Co. has recently issued a placard 13 x 18 inches in size, printed in three colors, to call attention —on the wall or in the window—to the "Knu-Shu." The card shows a large-size side view of the shoe and has a second cut showing the heel and sole. There are four corner illustrations intended to picture some of the logical wearers of this novel shoe. A brief description of this interesting specimen of footwear is also printed on the card, from which it will be discovered that the uppers are made of strong auto tire duck; that the sole is made of a special rubber, stitched by a new process to give greater service, while the heel is of the rubber cushion variety, which makes walking jarless and joltless, buoyant and exhilarating.

SPANISH FIRM IN THE MARKET FOR RUBBER.

TO the Editor of THE INDIA RUBBER WORLD:

I have received a leter from Mr. Francisco Blasi, my cousin, of the firm of Blasi, Sagué & Pallás, manufacturers of rubber goods, Roger de Flor street, No. 170, Barcelona, Spain.

In this letter he asks me to write to you and inquire if you know any firms who are willing to enter the Spanish trade dealing in rubber. He is interested in raw rubber (guayule), rubber substitutes (facticios), and sulphur (or sulphate) of antimony (crimson and golden).

As editor of THE INDIA RUBBER WORLD, will you not kindly place some firms in touch with Mr. Blasi and have them send samples by mail, with price lists, etc. Mr. Blasi's firm has been cut off from their regular rubber supply and they will have to shut down their factory unless they can get their goods from the United States. They are, of course, responsible people and are ready to deal on cash terms. Kindly write me what action you take on this letter.

Very truly yours,

F. VALL-SPINOSA.

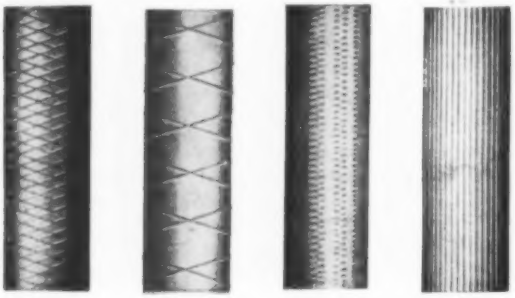
San Juan, Porto Rico, March 28, 1915.

The Thermoid Rubber Co., of Trenton, New Jersey, has opened an office in Detroit, to distribute its brake lining, bumpers, clutch facings, discs, hose, tires and other rubber products.

New Rubber Goods in the Market.

RUBBER GRIPS.

THE rubber grip, which is used to some extent in this country and has met with favor where once introduced, constitutes an important item in the output of some of the large British manufacturers. It is used very extensively in England on cricket bats, golf clubs, tennis rackets and hockey sticks. The illustration shows four of the many designs made by a leading manufacturer of sporting goods specialties. They are made



of high grade red rubber, in several thicknesses. The tennis racket grips are made from 7 to 9 inches long; those for golf clubs 10 inches, some styles being tapered at one end; the cricket bat grips are made 12 inches in length, and the hockey stick grips 15 inches. [W. & A. Bates, Limited. St. Mary's Mills, Leicester, England.]

THE INK-PENCIL.

The ink-pencil is a recent product of manufacturers who in the past have specialized in making fountain pens. These are made of hand-turned, highly polished hard rubber, fitted with writing points and needles of precious, non-corrosive metal not affected by the action of ink. A soft rubber plug is inserted in each cap, to prevent leakage when carried in any position and

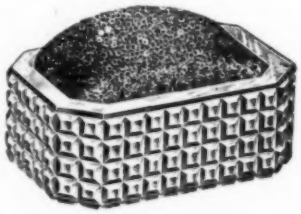
also to keep the point moist and ready for instant use. These ink-pencils, while excellent for ordinary writing, are particularly adapted for manifolding and ruling. The barrels are made of black, red, brown and olive green rubber, plain, chased and ornamented with gold bands and other trimmings, and with various ink capacities, from the "baby" size to the "banker." [J. Ullrich & Co., 27 Thames street, New York.]

A VERSATILE LAWN SPRINKLER.

The "Sunset" lawn sprinkler, which the manufacturers nickname the "Twicez-Good," is one of the interesting novelties of the season in this line. The Sunset acts both as a regular lawn sprinkler covering a round area, and also as a half circle sprinkler for use along sidewalks and fences. The change is made by a little thumb screw under the head of the sprinkler which makes it possible to cut off one-half of the flow of water, allowing the shower to cover a semi-circular area only. The manufacturers maintain that the Sunset is practically two lawn sprinklers in one; hence the "Twicez-Good." [W. D. Allen Manufacturing Co., Chicago.]

RUBBER STAMP MOISTENERS.

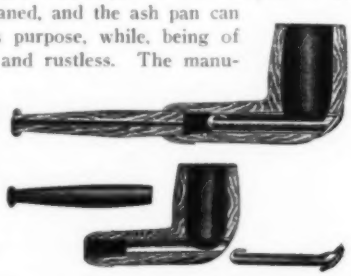
Two new styles of sanitary stamp moisteners are shown in the accompanying cuts. The "Hornet" moistener is made entirely of rubber, having a hard rubber handle to contain water, which feeds through a rubber valve and automatically saturates the rubber sponge. The other is the "Stahle" moistener, which is made of glass, hard rubber



and a sanitary rubber sponge. [The Weeks-Numan Co., 81-3 Fulton street, New York.]

A "HYGIENIC AND HEALTHFUL" PIPE.

This is the description given by the makers of the new Willis pipe, a pipe that has a hard rubber bit and an ash pan. The bit, can, of course, be cleaned, and the ash pan can also be removed for this purpose, while, being of aluminum, it is tasteless and rustless. The manufacturers state that, although they make pipes with bits of many other kinds, at least 95 per cent. of all orders received specify the hard rubber sort, which they claim to be the most popular on the market, not even excepting the amber, which has hitherto been the bit best liked. [The Willis Co., 76 Pilling street, Brooklyn, New York.]



COVER FOR HAND SEARCHLIGHT.

A hand searchlight cover for fire departments, submarine use and mine rescue work has recently been patented by Frederic W. Sparkman and assigned to the Goodyear India Rubber Glove Manufacturing Co., a subsidiary of the United States Rubber Co. The cover fits like a glove and is made of a high grade material to prevent water from short circuiting the light where it is likely to be used in or about much water. The pin, which is pressed to put on the light, may be turned from the outside of the cover to set the light for a given time.

A NEW HARD RUBBER SUBSTITUTE.

"Kasenoid" is the name of a new material brought out in London to take the place of ebonite, galalith and xylonite for many purposes. The properties of this material are quite similar to those of galalith—it is tough, resilient, easy to machine, non-inflammable, a good insulator, capable of being molded, to a certain extent, and is made in a variety of colors, either as sheet or rod. It can be turned and polished and takes an excellent thread. [A. W. Kanis, 66 Aldersgate street, London, E. C.]

WATERPROOF COVERS FOR THE MOTORIST.

Storm aprons or protectors of some kind are necessary features of the automobilist's outfit, and since the opening of the present season some excellent models have been shown. The cut herewith illustrates a storm apron which is made in sizes from the two-passenger runabout to the five-passenger large tonneau size, at prices from $10 to $15, of rubber cloth. These aprons have slip openings with yoke collars fitting closely around the neck, with snaps for closing in case the car is left vacant during a shower, the apron fitting the car perfectly and being absolutely waterproof. Each apron is packed in a waterproof bag suitable for storing away when not in use. [The Gilbert Manufacturing Co., New Haven, Connecticut.]

The other cut shows a waterproof protector of similar nature for the motorcyclist. This is in the form of a cape, made of light weight raincoat rubber cloth, affording protection to the machine at the same time that it shields the rider from rain, mud and cold. It has fastenings to hold it over the handle bars, and is so arranged that it does not inconvenience the wearer in dismounting. It can also be folded compactly for carrying. [Nathan Novelty Manufacturing Co., 84-90 Reade street, New York.]

THE "SLIPKNOT" RUBBER HEEL.

The demand for rubber heels is engaging the attention of many of the large manufacturers of rubber goods, and as shoe styles increase in number and variety, the more rubber heels are needed. The "Slipknot," though a comparatively recent addition to the supply of heels on the market, has been well received, the features which it is claimed have contributed to this favorable reception being its uniform composition, durability and correctness of size and shape. [Plymouth Rubber Co., Canton, Massachusetts.]

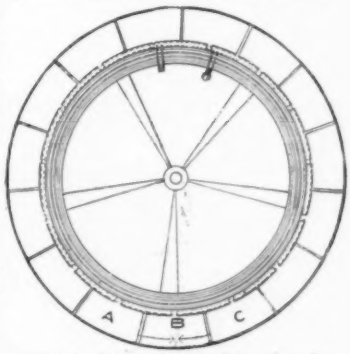
THE DIAMOND ACE GOLF BALL.

This ball, the latest type brought out by the manufacturers of a long line of golf balls under the "Diamond" and other brands, is said to have the endorsement of some of the best-known professionals of the country, to have perfect flight and an extremely long carry and wonderful roll, besides being durable and retaining its shape. [The Worthington Ball Co., Elyria, Ohio.]

The "Kewpie" is a new side garter for children, both the single top section and the double suspender ends being of elastic. These are joined by buckles of rustless nickeled brass similar to the clasps. The garter is attached to the child's waist by a "pin that locks," said to be an exclusive feature of this garter. Each pair is put up in a sealed envelope. [Arthur Frankenstein & Co., 516 Broadway, New York.]

AUTO-PNEU-MATIC INNER TUBE.

This inner tube, instead of being one continuous air chamber as is the case with the ordinary inner tube, consists of a number of sectional pieces of tube, requiring from 12 to 20, according to the size of the wheel, to constitute a complete tire. These sectional pieces or individual rubber bags are all joined to a small circular metal tube which acts as an air supply conduit.



Each bag or section is screwed to a valve set every 4 inches along the outer circumference of this conduit. By a turn of the control stem, each valve is opened to the main conduit, thereby making the separate sections practically one inner tube. Then the air is pumped through the main valve stem until the required air pressure is obtained, which will be the same in every section. By turning back the control stem, each valve is closed, and each section becomes an independent unit.

In case of a puncture, the 4-inch bag which has been punctured collapses, and each adjoining sack or section will expand, taking the place of the punctured bag. Tests have demonstrated that five or six punctures may be made before it is necessary to stop.

To remove the punctured bag, the air control stem is turned, which opens all the valves, and partly deflates the inner tubes. By means of a special tool provided for the purpose, the edge of the shoe immediately over the punctured section is raised, the punctured bag removed and a new one screwed in place. [G. V. Baillard, 251 East Thirty-first street, New York.]

THE "NOAIR" COMPRESSION TIRE.

The "Noair" is a new tire which costs about the same as the high grade pneumatic, but which, it is claimed, gives 17,000 miles of uninterrupted service and saves the cost of shock absorbers, the strain on the car and also accident insurance. The tread of this tire, which is made of solid rubber, is lined with steel. The rim rests on a crown of rubber, which is supported on a resilient

suspension, so that all shocks are absorbed inside the tire. This tire has a purchase on the rim which is mechanical and does not rely on inflation. It has the tenacity of the solid tire, without either wire or fabric and, also according to the claim of the manufacturers, will sustain a maximum compression that would burst a pneumatic tire. [W. J. Spencer, 1504 Green street, Philadelphia.]

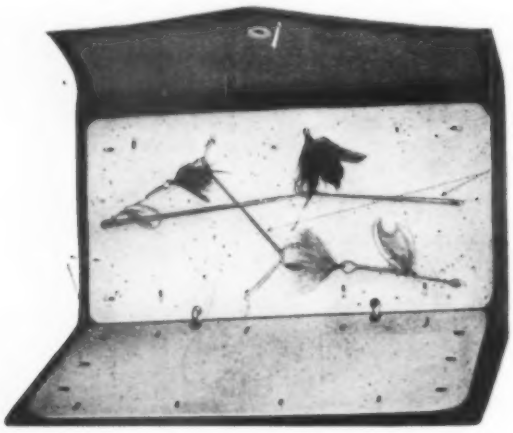
A NEW JENKINS DISC.

A new disc made of rubber composition and to be known as the "Jenkins Bros. No. 119," has just appeared on the market, after a series of tests which are said to have shown the composition to be hard, but tough and flexible under service when in steam pressure; to possess freedom from cracking and flaking and durability in working steam pressures up to 150 pounds. This new composition will hereafter be used in all of the manufacturers' standard pattern globe, angle, cross and radiator valves when intended for steam service. [Jenkins Bros., Elizabeth, New Jersey.]

RUBBER IN FISHING.

SUCCESS in fishing no longer depends chiefly upon the skill of the fisherman, but with every season is due in greater measure to the ingenuity of the manufacturers of fishing paraphernalia, until the disadvantage lies now wholly with the fish.

The fisherman's first concern, after his rod, lies of course in the direction of bait. Those who in the past have carried their flies, spinners, etc., in a tin box, where they became entangled



beyond any hope of quick extraction, will appreciate the fly-book illustrated here and which has just come on the market. This book is absolutely waterproof. The cover is made of durable rubberized leather and is fastened with a glove snap. The metal parts are of brass or aluminum and cannot rust. The loop of the bait is attached to a metal peg and the hook caught in a rubber band stretched for that purpose from one peg to another. These rubber bands can be adjusted for any size of spinners or flies, eyed or snelled, and the sheets for holding them can be taken out or new ones added, as desired. This book holds the flies, etc., flat, and makes it possible to remove them with one hand. [The John Hildebrandt Co., Logansport, Indiana.]

Another improvement of the present season is in the apparatus used for spraying dry flies with oil. Instead of the old style bottle with a brush attached to the cork and carried in a leather case, we now have the rubber atomizer. This enables one to apply just the needed amount of oil and prevents matting of the wings and tackle. When not in use the glass tube telescopes into the rubber bulb and a stopper is inserted in the end of the tube. The illustrations show the atomizer ready for use and also closed to a length of 4 inches. [New York Sporting Goods Co., 15-17 Warren street, New York.]

Other of the new wiles by which man lures his victims from the watery depths, and in which rubber is made to lend its part, are in the form of the baits illustrated. The first is a bait of soft rubber, of a bright aluminum color with gold spots. It is intended for use where there are reeds and lily pads, or around stumps and logs, being of the "weedless" variety, and it yields instantly when a strike occurs, so that the hooks which it protects are permitted to engage. The other is a new minnow. It also is made of rubber, tinted to counterfeit nature and strik-

ingly natural in appearance. Its intended use is in deep water casting and trolling. [William Shakespeare, Jr. Co., Kalamazoo, Michigan.]

As personal comfort is quite essential to the enjoyment of sports, rubber, of course, is very important in the proper outfitting of the fisherman in respect to his clothing. And styles change with the seasons even in fishing outfits. Here are shown two of the latest English offerings in fishing outfits. The first

illustration shows a short water-proof wading jacket worn as an accompaniment to the rubber fishing trousers, and a "Heintz" hat designed by a German sports authority of the same name. The other shows the "Kathador" slip-on, which is made of fabric interlined with a thin film of fine rubber. It is made with extra fullness that not only gives with the movements of the wearer, but thoroughly ventilates the garment. [J. C. Cording & Co., Limited, 19 Piccadilly, London, W.]

A NON-SKID DEVICE.

The illustration shows a new sectional non-skid attachment for dual tires for trucks and heavy vehicles, known as the B & B. non-skid. About 30 sections are required to fit each wheel. [Dockray & Tilton, Meadow Lane, Leeds, England.]

ALODIUM FOR TIRE PUNCTURES.

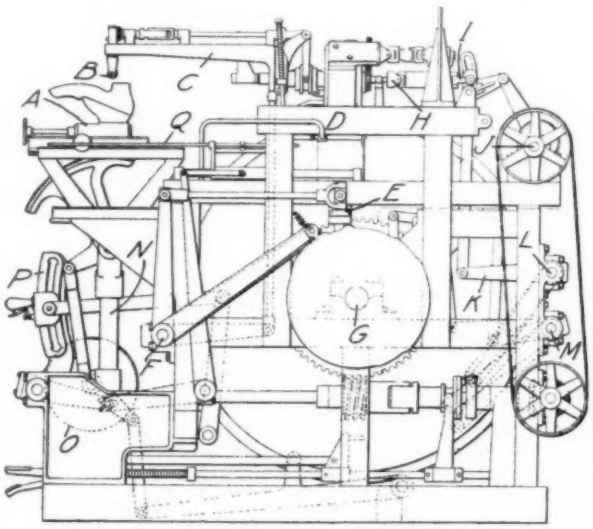
Alodium is one of the newest compounds for sealing tire punctures. This is in liquid form, to be injected into the inner tube through the valve. Its nature is said to be such that, while it adheres only slightly to the tube under ordinary conditions, it will, under air pressure, adhere with great strength to the raw edges of a cut or puncture and in closing the puncture will not stick to the casing. [Lydon Manufacturing Co., 1514 Michigan avenue, Chicago.]

New Machines and Appliances.

RUBBER SHOE SOLE ROLLING MACHINE.

VERY few machines are in use in the manufacture of rubber boots and shoes; in fact the whole process of manufacture is a hand process. Winkley's machine, however, is designed not only to apply the sole to the otherwise finished shoe, but to roll it, pound it, and stick it securely, practically copying the motions used by the operative with the hand roller.

The machine is quite complicated and one outline cut is hardly sufficient to illustrate it in detail. The important parts, however, are shown and they are the shoe itself, which on its last is carried on a jack; above this works a shoe arm to which a roll is attached. The jack is moved backward and forward and turning, while the roll above it is vibrated and manipulated so that every portion of sole, heel, shank, forepart and beveled edge are thoroughly and quickly covered. This is a double machine and finishes a pair of shoes at one time. The illustration shows only one-half of the machine working on one shoe. [E. E. Winkley, United States patent No. 1,124,190.]

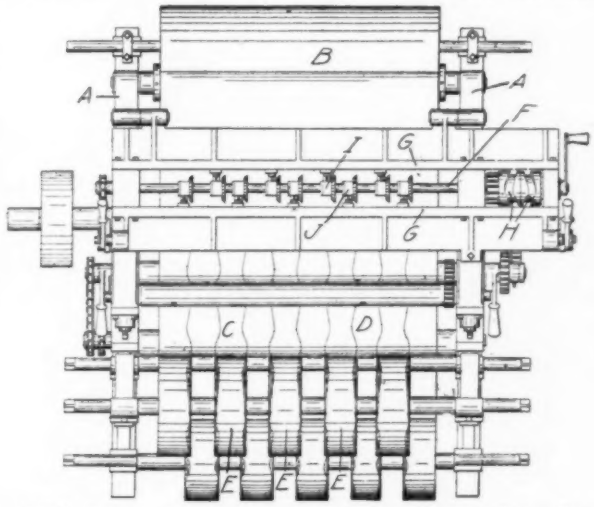


A—Jack. *B*—Shoe Roll. *C*—Shoe Roll Arm. *D*—Rocking Frame. *E*—Rocking Lever. *F*—Rock Shaft. *G*—Main Shaft. *H*—Universal Joint. *I*—Rocking Link. *J*—Eccentric Cam Shaft. *K*—Vibration Lever. *L*—Vibration Cam Shaft. *M*—Angular Vibration Shaft. *N*—Jack Slide Shaft. *O*—Jack Slide Gear. *P*—Jack Link Motion. *Q*—Roll Controlling Rod.

INNER SOLE CUTTING MACHINE.

THIS machine can be used for slitting any fabric in strips with straight or curved edges. Here it is described in reference to cutting sole linings, which are then wound with the proofed side down on reels so that the heel strip unwinds first.

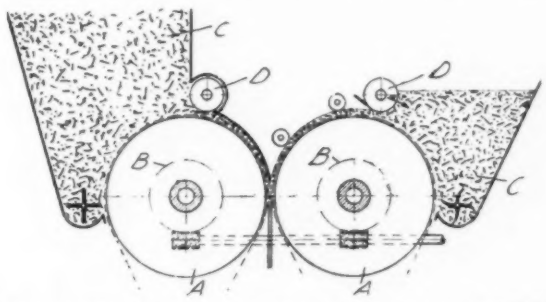
The two side frames support the bearings of the various shafts and the driving mechanism. The cross frame which carries the lower cutter shaft, brackets, gearing, etc., is bolted to the top of the frames. Directly above this is a similar frame that carries the upper cutter mechanism. This is hinged to give access to the parts. The cloth is fed from the fabric roll around a guide roller and under and over two tension rollers. It then passes between the upper and lower revolving cutters and is slit into strips which then pass under and over the tension rollers, and between the feed rollers to the wind-up reels. The toe strips are wound on the upper reels, while the heel strips are wound on the lower reels. These are afterwards rewound so that the heel strip unwinds first. [V. E. Jullien, United States patent No. 1,127,448.]



A—Side Frames. *B*—Fabric Roll. *C*—Toe Strip. *D*—Heel Strip. *E*—Toe Strip Reels. *F*—Upper Cutter Shaft. *G*—Reciprocating Cutter Bars. *H*—Cutter Bar Cams. *I*—Upper Cutter Bracket. *J*—Upper Cutter Gearing.

MACHINE FOR MAKING SHEETS OF ASBESTOS AND CEMENT.

THIS is a machine designed to make multiple layers of asbestos fiber and cement and form them into sheets. The illustration shows an end view in section. The perforated drums are mounted in bearings supported by side frames not shown in the drawing. They revolve toward each other and are driven from a cross shaft by worm and pinion gearing. The two hoppers containing the material are provided with agitator blades that prevent the mass from settling to the bottom. The two perforated feed rollers are mounted parallel to the drums and revolve in the same direction. These rollers spread the material over the surface of the revolving drums and carry the two layers between their adjacent surfaces, where the material is formed into a continuous sheet.

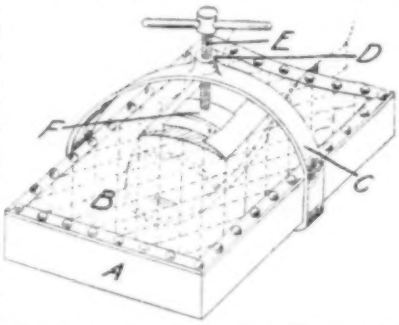


A—Perforated Drums. *B*—Worm Gearing. *C*—Hoppers. *D*—Feed Rollers.

The feed of the material on the right is regulated by adjusting the feed roller in the direction of the arrow, while the feed of the material on the left is constant. [G. Oeisler, German patent No. 281,713.]

RUBBER SOLE PRESS.

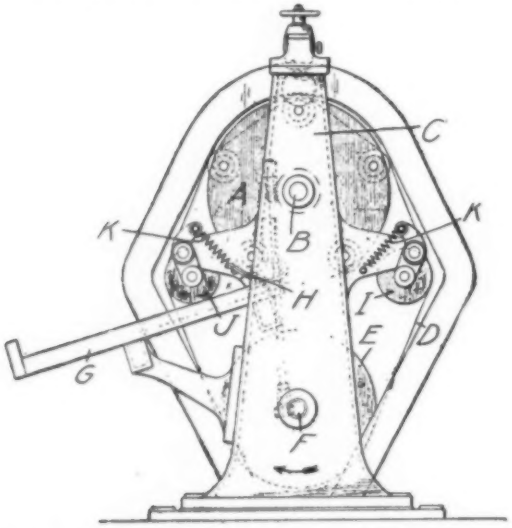
THE accompanying drawing shows a press for attaching rubber soles to boots or shoes. This press is composed of a frame *A* over which a strong but flexible web *B* is tightly stretched and fastened. A curved metal band *C*, reinforced at its center, is fastened to the frame and extends over the web. The reinforced center of this band is provided with a threaded hole *D* through which the threaded screw *E* passes This has at its lower end a press-plate *F*. By turning *E* the press-plate can be raised from or forced towards the web. The frame is cut out on one side so that the shoe can be set upright on the cradle formed by the web. A piece of rubber cut to shape is fixed to the under side of the press plate. [Continental Caoutchouc & Gutta Percha Co., German patent G. M. 621,569.]



IMPROVED RING CUTTING MACHINE.

THIS is an improved machine of the multiple mandrel type for cutting rubber tubes into washers and rings. The mandrels on which the tubes are placed are held between rotary discs, forming a sort of reel, and are caused to rotate as they are presented to the cutting arrangement. Once the cutting is done this movement of rotation is arrested so that the mandrels can be removed and new ones adjusted in their place. In this improved machine the mandrels are ejected automatically and fall on a receiving table, manual labor being limited to the placing of the mandrels in the machine.

The illustration shows an end view of the new machine, sufficient to explain the improvements. *A* is one of the mandrel-carrying discs keyed to shaft *B*, supported by bearings in the side frames *C*. The mandrels are set in centers arranged on the discs and shown by dotted circles in the illustration. *D* is an endless belt driven by pulley *E* keyed to the shaft *F*. This belt causes the mandrels to rotate as they pass under the cutting arrangement. *G* is the table which receives them as they are ejected by a tripping mechanism, and *H* a spring brake which arrests their rotation as they present themselves to the ejector. Idlers *I* and *J*, which maintain constant tension of belt *D*, are held in proper position by springs *K*.



The operation of this machine is continuous, new mandrels being adjusted by the operator without any stoppage of the machine. [Bertrams, Limited, and Robert Fausset Gillespie, both of Edinburg, Scotland. British patent No. 1,916.]

THE ADAMSON HOSE WIRING MACHINE.

THE illustration shows a machine designed to cover standard garden or steam hose with wire. It will wind a variety of sizes of wire, round, half round or flat, and in any pitch required. A novel feature of the machine is the mechanism that winds the wire so that it clings closely to the hose. This prevents unwinding in case any of the wire strands should break from use or be cut by accident.

In the process of winding, the hose is revolved as it passes through the winding head, where it is wired at the rate of 15 feet per minute. [The Adamson Machine Co., Akron, Ohio.]

OTHER DEVICES.

MOLDING RUBBER ARTICLES. A German invention provides for the manufacture of hollow seamless rubber articles by mechanically operated molds and a separate machine for closing the open end of the molded article.

The table of the machine is mounted on columns and supports two horizontal hydraulic presses. These open and close the mold, which is chambered for heating or cooling. The mold is located in the center of the table and is in two parts which slide horizontally and independently of each other. When the presses are operated simultaneously the mold parts are brought together in perfect alignment.

The core, which is attached to the piston of a vertical hydraulic press operating below the table, has grooves at its lower end that correspond with annular rings in the mold sections. These insure perfect alignment of the core and mold.

The top of the mold registers with a feed block that is fixed to the crosshead. This block is bored to fit the piston of a vertical hydraulic press mounted on the crosshead of the machine, and also communicates with the mold. The rubber stock is placed in the feed block in front of the piston, which forces it into the heated mold. The mold is then cooled, opened and the molded article removed.

The machine for closing the open end consists of a vertical spindle supported in bearings and driven by bevel gearing and a straight and cross-belt for reversing the spindle. The upper part of the spindle has left-hand threads and the lower part has right-hand threads. Threaded on the end of the spindle is a smooth cone-shaped former. Two toggle levers are pivoted to a loose collar at the center of the spindle, with their lower ends pinned to a nut threaded on the lower part of the spindle. The upper ends of the toggle levers engage an elastic rubber ring with a hole in its center.

The rubber article is slipped over the cone-shaped former and

the spindle revolved. This causes the toggle levers to open and enlarge the opening in the rubber ring through which the cone former forces the rubber bag or bottle, or whatever the article may be. The spindle is then reversed, the cone recedes, the toggle arms relax, and the rubber ring returns to its original shape and closes the open end of the molded article. [R. Daescher, British patent No. 7299.]

COLEMAN'S COLLAPSIBLE CORE.—This invention provides a metal core upon which the casing is built in the usual way, and which can be collapsed and removed from the tire casing. It is made of metal and cored to reduce the weight. It consists of a rounded rim that corresponds with the body of the casing, a reduced neck and a broadened base to support the beads. The core is formed in four sections which are collapsed after the tire is formed, and withdrawn successfully through the inner opening of the casing. When the sections are assembled they are held in alignment by a removable annular ring which is channeled to fit the flanges of one side of the core. The inner circumference of the core sections has tapered recesses that fit the four wedge-shaped blocks through which pass the locking bolts. These also pass through angle plates attached to the annular locking ring and are threaded and provided with hexagon nuts on their outer ends.

The core is assembled by placing the locking ring on the core sections with the wedge blocks within the recesses, which are tightened by rotation. After the tire has been formed the securing plate and blocks are moved upwardly in the inclined recesses until the bolts and blocks are opposite the outlet of the recesses. Then the plates, blocks and ring are removed, which leaves ample space for the withdrawal of the core by removing one section at a time. [F. Coleman, United States patent No. 1,131,332.]

CELL DRIER NINETY INCHES WIDE.

THE biggest yet is always interesting. Several cell drying machines have been made 10 cells high and 82 inches wide for use by rubber companies in this country. But a drying machine was recently made at Taunton to be shipped abroad for use in drying duck 84 inches wide, which is probably the largest of these cell drying machines ever made. It consists of 10 cells and is 90 inches wide. It occupies a floor space 63 inches by 100 inches and stands 100 inches high. The cell units will use steam at 20 pounds pressure. It is built on the unit type, so that it can be readily added to at any time if desired. The rollers are of seamless drawn brass tubing, and oilless bearings are used throughout. The drive is by roller chain and sprockets.

On the drive side of the machine a removable steel housing is provided, with an opening for attaching to the ventilating exhaust line. By this arrangement, all moist air is drawn from each cell across to the drive side, warm dry air taking its place. This adds greatly to the efficiency of the machine, and permits drying thoroughly at higher speeds than could otherwise be done.

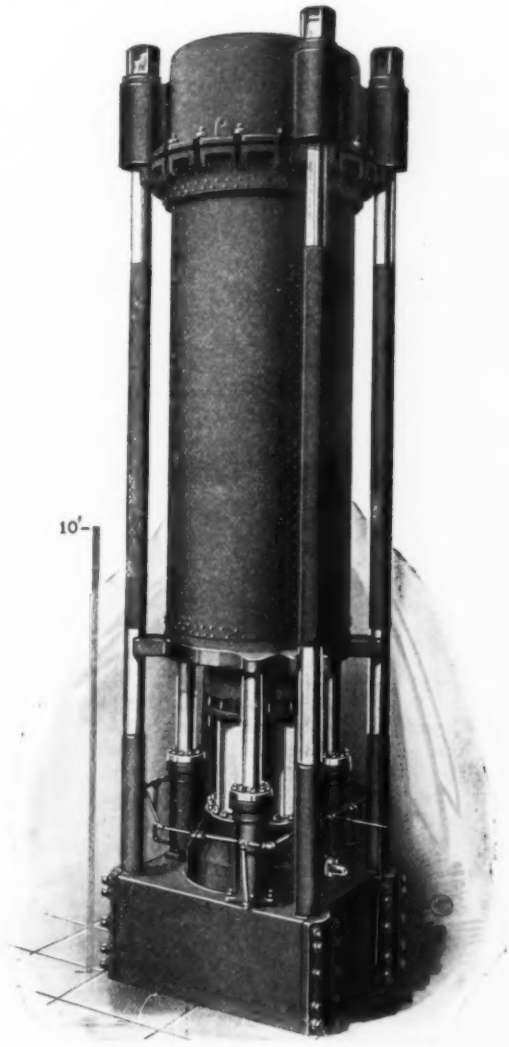
This huge machine was made by George A. Cutter, sales agent, successor to Cell Drier Machine Co., of Taunton, Massachusetts.

The William R. Thropp & Sons Co., which manufactures machinery of all kinds for the rubber industry, has just added a new erecting shop, 60 x 160 feet, equipped with electric traveling cranes, to its plant at Trenton, New Jersey. This company has recently put on the market a new combination calender using an electric motor for raising and lowering the rolls and in which all gears are protected by guards.

Barney Oldfield, the veteran motor racer, established a new non-stop record by winning the recent 300-mile automobile race at Venice, California, without making a single stop. His racer was equipped with Firestone tires.

A LARGE TRUCK TIRE PRESS.

THE accompanying illustration shows a truck tire press and vulcanizer capable of exerting a total pressure on the tire molds exceeding anything ever built before in this country. It has been found that no ordinary pressure would effectually operate against the pressure of the rubber in the molds. Presses with rams as large as 22 inches in diameter and with 1,500 to 1,800 pounds pressure have failed to do this work satisfactorily.



This press is built for an initial water pressure of 3,500 pounds per square inch; it has a 24-inch ram and the total pressure on the molds is approximately 800 tons. This press has a vulcanizing tank, with a clear space for molds of 10 feet, and which has been tested for a safe working pressure of 100 pounds per square inch. The press is built almost entirely of steel and weighs 98,000 pounds. With it there is used an accumulator constructed to maintain a pressure of 3,500 pounds per square inch.

Both press and accumulator are the product of the Birmingham Iron Foundry, Derby, Connecticut.

A tire repair and vulcanizing plant has been opened by the Dunbar Tire Works at 5406 Boulevard, North Bergen, New Jersey.

News of the American Rubber Trade.

THE HODGMAN RUBBER CO. TO HAVE A LARGE OFFICE BUILDING.

CONTRACTS have been given by the Hodgman Rubber Co. for the erection of a large office building 50 x 150 feet, with three stories and basement, and an extension 50 x 55 feet. This building will have all the conveniences and equipment that are known to modern office construction. It will be located in Tuckahoe, near the company's factory, and will accommodate the company's entire office force.

GUTTA PERCHA & RUBBER MANUFACTURING CO. HOLDS ANNUAL MEETING.

The Gutta Percha & Rubber Manufacturing Co., which manufactures mechanical rubber goods, having factories in Brooklyn and branches in Boston, Philadelphia, Chicago and San Francisco, as well as a New York office at 126-8 Duane street, held its annual meeting on April 9, when the following directors and officers were elected: Henry Spadone, president; Walter W. Spadone, vice-president; Alfred A. Spadone, secretary; Matthew Hawe, treasurer; all these officers together with Amedee Spadone and Charles C. Spadone being directors.

THE PEERLESS RUBBER CO. MOVES ITS NEW YORK OFFICE.

On May 1 the Peerless Rubber Manufacturing Co. moved its New York headquarters, including its executive office, sales and storerooms from 16 Warren street to 31 Warren street. While the company remains in the same location, moving practically only across the street, the change means a great deal in the way of enlarged space and increased facilities. It was only a few years ago that the company, finding its accommodations at that time inadequate, moved to 16 Warren street with the expectation that that spacious building would accommodate its growing business in mechanical rubber goods for many years to come; but the quarters, spacious as they appeared to be then, were long since outgrown. At the new address, 31 Warren street, the company occupies a large building that runs through from Warren street to the next street, affording a great deal of additional room, excellent light and a large increase in facilities for quick dispatch of business and efficient service generally.

There is no better barometer of general manufacturing conditions than active demand for mechanical rubber goods, and the fact that the Peerless company has been obliged to look for larger quarters indicates that there are a good many manufacturing plants at least that feel warranted in giving orders for renewed equipment.

CAPITAL STOCK INCREASES.

The Electric Hose & Rubber Co., of Wilmington, Delaware, has increased its capital stock from $483,500 to $580,200, and stockholders will be permitted to subscribe for the new shares on the basis of 20 per cent. of their present holdings. The proceeds of this $86,700 issue will be used for extensions, improvements and additional working capital. This company has branches at New York, Philadelphia, Chicago, New Orleans and San Francisco. Its officers are: President, James Boyd; vice-president, T. Allen Hilles; secretary and treasurer, C. D. Garretson.

The Boss Rubber Co., of Denver, Colorado, has recently reorganized and increased its capitalization to $100,000. This company was formed late in 1908, with a capital stock of $10,000, to distribute tires. The reorganization followed the retirement of its president, John G. Boss. The present officers are: S. Z. Silversparre, president; F. P. Lilley, vice-president; Robert Rhea, secretary and treasurer. Branches have been established at Pueblo, Colorado, and El Paso, Texas.

The Turner, Vaughn & Taylor Co., engineers and manufacturers of rubber manufacturing machinery of all kinds, have increased their capital stock from $48,000 to $100,000.

ANNUAL STATEMENT OF THE HOOD RUBBER CO.

On February 27 last the Hood Rubber Co., of Watertown, Massachusetts, sold the balance of $200,000 of the authorized issue of preferred stock, which was paid for in cash March 2, making the total capital issue today as follows: Common, $2,000,000; preferred, $2,500,000; total, $4,500,000.

The annual statement, recently issued, shows the condition of the company on December 31, 1914. The important items are given in the condensed balance sheet shown below:

CONDENSED BALANCE SHEET.
December 31, 1914.

ASSETS.

Plant		$2,275,000.00
Merchandise		1,163,828.66
Accounts Receivable		3,566,985.33
Cash		209,766.10
Investments in Other Corporations		226,568.00
Patents		1,000.00
		$7,443,148.09

LIABILITIES.

Capital Stock—Common	$2,000,000.00	
—Preferred	2,300,000.00	
		$4,300,000.00
Notes Payable		1,975,000.00
Surplus		1,168,148.09
		$7,443,148.09

JACOBY CLUB.

On the evening of Thursday, April 8, an entertainment for the benefit of the Jacoby Club was held in Bates Hall, Y. M. C. A. building, Boston. This club, founded by Ernest Jacoby, is of a purely philanthropic character. As described by the founder, it is "a club for men to help themselves, by helping others." Mr. Jacoby, with the help of his efficient secretary, Mr. D. H. McFeeters, is doing an excellent and far-reaching work, with the endorsement and co-operation of the best people of Boston.

KING PRODUCTS.

The King Rubber Co., of Hyde Park, Massachusetts, is specializing in a transparent nipple of pure gum, which has already attracted considerable trade interest. Like all King products, it is attractively put up. This company also makes an extensive line of household and surgical gloves, guaranteed against oxidation, the latter standing the highest sterilization test.

RUBBER COMPANY DIVIDENDS.

The McGraw Tire & Rubber Co., of East Palestine, Ohio, on April 1 paid a regular quarterly dividend of 1¾ per cent. on its preferred stock.

The United States Rubber Co. on April 1 declared a quarterly dividend of 2 per cent. on its first preferred stock, a quarterly dividend of 1½ per cent. on its second preferred stock and a quarterly dividend of 1½ per cent. on common stock—payable April 15.

The Kelly-Springfield Tire Co., of Akron, Ohio, has declared a quarterly dividend of 1½ per cent. on the common stock of the company, payable May 1 to stockholders of record on April 15.

The Firestone Tire & Rubber Co., of Akron, paid, April 15, a regular quarterly dividend of 1¾ per cent. on its preferred stock and a regular quarterly dividend of 3 per cent. on common stock.

The Miller Rubber Co., of Akron, paid, April 20, a regular quarterly dividend of 2½ per cent. on its common stock.

The Swinehart Tire & Rubber Co., of Akron, paid, April 10, a regular quarterly dividend of 1½ per cent.

TRADE NEWS NOTES.

A fine of $200 to be imposed on any person convicted of placing glass, tacks or other sharp substances on the roads for the purpose of injuring tires is provided for in a bill recently introduced in the Ohio General Assembly.

The Imperial Government of Germany offers a cash prize of 100,000 marks ($25,000) to the inventor of a satisfactory process for regenerating rubber. It also offers a prize for a material suitable for truck tires. It must, at least to a considerable extent, be immune against oil, water and acids, and for traction must possess a co-efficient of friction approaching very near to that of rubber. Solid tires alone are concerned.

The American Tire & Rubber Co., of Akron, which recently reduced its capital stock from $500,000 to $250,000, as mentioned on page 334 of our March issue, is now manufacturing automobile tires, its plant being equipped for a capacity up to 500 tires and 1,000 inner tubes daily. At present only the smaller sizes are being turned out, but expectations include the production of all sizes before the close of the season and the manufacture of a type of tire carrying a 4,000 mile guarantee.

The cost of the solid tire equipment necessary for the proper maintenance of a motor truck is placed by the Goodyear Tire & Rubber Co. at $175 a year.

The Simplex Wire & Cable Co., of Boston, has recently filled an order for 2,900 feet of three-conductor, 250,000 C. M. double armored cable, placed by the J. G. White Engineering Corporation for the Down Town Mines Co., of Leadville, Colorado.

The David Feinburg Co., formerly trading as D. Feinburg Co., and dealing in rubber scrap of all kinds, has given up its offices at 138-40 Watts street, New York, and 168 A street, Boston, the present address of the company being 11 Broadway, Chelsea, Massachusetts.

The Excell Rubber Co. has purchased 3 acres of land at Wadsworth, Ohio, as a site for a tire manufacturing plant, work on which will soon be started.

The Pneumatic Tire Co., a Kentucky corporation, is soon to establish a tire factory at Madisonville, a suburb of Cincinnati, Ohio. J. D. Keith and Carl E. Glascock are the stockholders chiefly interested, and the concern is capitalized at $100,000.

The Franklin Auto Shoe Co. has been incorporated at Pendleton, Indiana, with a capital of $10,000, by S. W. Featherngill, William Featherngill and Thomas M. Hardy, to manufacture non-skid casings for automobile tires.

The Michelin Tire Co., of Milltown, New Jersey, has opened a branch at 1109 Walnut street, Des Moines, Iowa. R. B. Tracy, under whose direction the Chicago, Minneapolis, St. Paul and Detroit branches of this company are conducted, will also have charge of the new branch.

The Goodyear Tire & Rubber Co., of Akron, Ohio, reports a 26.6 per cent. increase in pneumatic tire output during the past year, with almost 1,500,000 tires made and sold in that period. Expectations are for a production of 2,000,000 tires during 1915. Figures showing increase in this line are given as follows: 1909, 102,669; 1910, 207,442; 1911, 332,458; 1912, 883,224; 1913, 1,139,869; 1914, 1,478,396.

This company has given its endorsement to the movement to secure a State armory for Akron by announcing that it will pay regular wages to employes who may join the National Guard, for the two weeks each year spent at encampments. The announcement states: "We consider it an example of good citizenship on the part of any man to join this body and believe he should have the moral support of all other good citizens."

The William Beckers Aniline & Chemical Works has recently purchased a tract of about 15 acres of land near Jamaica Bay, New York, for the erection of a new plant which will consist of not less than 23 buildings. The construction work has already started.

THE RUBBER SUNDRIES ASSOCIATION MERGES WITH THE RUBBER CLUB OF AMERICA.

At the fifteenth annual meeting of the Rubber Sundries Manufacturers' Association, held on April 8, it was voted to dissolve the association as a separate organization and to make it a division of The Rubber Club of America, Inc. Mr. Russell Parker, of Parker, Stearns & Co., and Mr. Charles J. Davol, of the Davol Rubber Co., who served last year as president and vice president of the association, were elected chairman and vice chairman of the new Division. Mr. H. S. Vorhis, secretary and treasurer of the Rubber Club, was elected to the same office in the Sundries Division.

CERTAIN HOUSEHOLD ARTICLES EXEMPTED FROM RUBBER AGREEMENTS.

To an inquiry under date of March 24 by Acting Secretary of State Robert Lansing, at the suggestion of the Merchants' Association of New York, as to whether the agreements under which rubber is now allowed to leave British ports for the United States, are intended in their application to restrict the export of products, such as clothes wringers and carpet sweepers, where rubber of a poor quality plays a necessary though minor part, the British ambassador has made the following reply:

"So far as I am aware, the restriction to which you refer does not apply to the exportation to neutral countries of household utensils such as those mentioned in your letter, of which rubber forms only a fractional part."

S. SCHEIN & SONS' NEW YORK OFFICE.

S. Schein & Sons, who for the last 14 years have done a large business in waste rubber and gutta percha, with headquarters at 21 Finsbury street, London, England, and with branches in Antwerp, Paris and Cape Town, South Africa, decided, because of their increasing American business, to open branch offices in New York. Their first office in that city was opened in November, 1914, at 621 Broadway, but about the middle of April their headquarters were moved to 140 Nassau street, in order to get larger room and better facilities and for the additional purpose of getting nearer to the crude rubber and waste rubber center of the city. Their New York offices are in charge of Mr. J. S. Schein.

MR. BABCOX DELIVERS AN ADDRESS.

Edward S. Babcox, advertising manager of the Firestone Tire & Rubber Co., delivered an address at a joint banquet held by the St. Louis Accessory Association and the Advertising Club, on the evening of April 13. It was an able address, full of interesting information and valuable in its many suggestions. Mr. Babcox said that the big problem in any industry is not the question of manufacturing but of economic distribution. The work of distribution he divided between the advertising department and the traveling salesman, the efficient co-operation of these two forces being necessary for satisfactory distribution. He believed that inefficiency had been more successfully eradicated from factory management than from sales departments. As an illustration he cited an instance. "Recently," he said, "I was talking with a salesman of a certain company who told me that if he could not do all the work expected of him in two hours a day so he could have the rest of the day for his own pleasure, he would count himself no good. He was soldiering on his job and had been for months. Yet, the drag-net of the sales department in that organization had never caught him. How long would this kind of thing go on in the big factories represented here tonight?"

It would be worth while for any salesman, particularly for sales managers, to get a copy of this address, which undoubtedly the Firestone company will be glad to send on request.

SAMUEL M. NICHOLSON, DIRECTOR OF THE UNITED STATES RUBBER CO.

MR. SAMUEL M. NICHOLSON is one of the comparatively recent additions to the United States Rubber Co.'s board of directors. He was elected for a second term at the last annual meeting held on March 16. But he is by no means a newcomer in the world of big business, for there are very few men in the country, certainly very few in New England, where Mr. Nicholson comes from, who have a wider circle of business interests. Manufacturing, banking, insurance, lighting, railroads, lumber, publishing—he's in them all.

SAMUEL M. NICHOLSON.

Mr. Nicholson was born February 25, 1861, in Providence, Rhode Island, which has always been his home. Eight of his ancestors were Colonial governors of Rhode Island, so that before he was born he had a fine record in his favor. He hurried through his Latin and Greek and logarithms and at 18 was ready to go to work—which he did in the mills of the Nicholson File Co., founded by his father. He familiarized himself with the manufacturing of files, then he spent some time in the office to see how the business end was conducted and then traveled extensively in the United States and Europe in the interests of the company. In this way, the factory, the office and the market all became familiar subjects to him. In 1891 he was made vice-president of the company and two years later elected president and general manager—two positions he has held ever since.

He is also president of the American Screw Co. and a director in nearly a score of companies, including the United States Rubber Co., the Industrial Trust Co. of Providence, the Union Trust, the Narragansett Electrical Lighting Co., the Norfolk Southern Railway Co., the John I. Roper Lumber Co., the Providence Tribune Co., and others and more, besides seven insurance companies. But even so, he has never allowed business to get the upper hand—he extracts a great deal out of life besides fine annual reports. He is much devoted to yachting and belongs to the New York Yacht Club, besides several in Rhode Island. He is a member of a number of social clubs in his home section, besides the Union League and other clubs in New York City. He has also played quite a part in politics—as a member of the Providence Common Council, as Colonel on the Governor's staff; and in 1904 he was one of the presidential electors who voted to give Mr. Roosevelt four years in the White House.

The Schacht Rubber Co., of Huntington, Indiana, is preparing plans for the enlargement of its plant.

The Whitall Tatum Co., which manufactures rubber sundries for the drug store trade, is making extensive additions to the equipment of its factory at Keyport, New Jersey, the press department equipment being more than doubled.

PERSONAL MENTION.

Horace L. Dawson has been promoted to the district sales management in the Chicago territory for The Cutler-Hammer Clutch Co., of Milwaukee, manufacturers of the magnetic clutch-brake equipment for rubber mills. Mr. Dawson became associated with the Cutler-Hammer company in 1907, immediately after his graduation from Cornell. When the company opened its Cincinnati office, in 1913, he was placed in charge.

Nicholas F. Brady, a member of the board of directors of the United States Rubber Co., is one of the eight members of the Finance Committee of The National Security League, Inc., an organization formed to promote plans to adequately prepare the United States for defence. Membership in this League—which is located at 25 Pine street, New York—is divided into three classes, life, contributing and annual, with dues of $25, $5 and $1, respectively.

S. P. Woodard has been appointed sales manager of the New Jersey Car Spring & Rubber Co., of Jersey City, New Jersey.

C. E. Speaks has been appointed manager of the motorcycle tire department of the Firestone Tire & Rubber Co., of Akron, Ohio.

Benjamin F. Hochschild, of Chicago, was elected on March 1 to the office of president and general manager of The Gordon Rubber Co., of Canton, Ohio, formerly held by A. E. Gordon.

Joel Mann Martin, for the past five or six years Atlanta manager for the Banner Electric division of the General Electric Co., on April 5 entered the employ of the Walpole Tire & Rubber Co., of Walpole, Massachusetts, as Southern representative, handling Walpole tapes and insulating varnishes.

Jacques Reismann, of Manaos, Brazil, arrived in New York April 12, by the Lloyd Brazileiro steamship "Sao Paulo." Mr. Reismann, who is a prominent merchant and importer of supplies, numbering among his customers some of the best-known rubber men of the Upper Amazon and the Acre district, expects to remain in the United States for two or three months.

Henry H. Holland, manager of the London office of the United States Rubber Co., is paying his annual visit to the United States.

C. E. Siegfried has established offices in the Hamilton building, Akron, Ohio, where he will act as Western agent for George E. Pell, crude rubber broker, of New York.

E. D. Hartman has been entrusted with the management of the branch just opened in Washington, D. C., at 1313 New York avenue, by the Fisk Rubber Co., with whose Baltimore branch he was connected for several years.

Thomas A. Bennett, for the past five years in charge of the conveyor and elevator belt sales of The B. F. Goodrich Co., at Akron, has become associated with the New Jersey Zinc Co., in New York, as assistant to the general sales manager.

Frederick J. Redemann has been promoted from the management of the Worcester, Massachusetts, branch of the Goodyear Tire & Rubber Co., to the position of manager of the branch at Hartford, Connecticut. He is succeeded in Worcester by E. T. Ramey.

J. B. Fry, who was for five years in the employ of the United States Navy, as a rubber expert, has been appointed manager of the Detroit branch of the Empire Rubber & Tire Co., of Trenton, New Jersey, with an office at 842 Woodward avenue.

The latest handicap list of the Metropolitan Golf Association, issued April 10, includes among its 553 names that of Russell G. Colt.

Charles A. Coe, manager of the Boston office of the United States Rubber Co., has had an attack of pneumonia but, it is pleasant to record, is now convalescing.

THE LATEST ARRIVAL IN THE CANADIAN RUBBER TRADE.

The latest addition to official circles in the rubber trade of Canada is John William Henderson Miner, son of Vice-President William H. Miner, of the Miner Rubber Co., Limited, of Granby, Quebec. The young man reached Granby on March 11, in good health, and registering 8 pounds.

MR. F. J. GLEASON JOINS THE STANDARD COMPANY.

Frederick J. Gleason, who for a number of years has been connected with the Walpole Tire & Ruber Co. as vice-president and general superintendent, has left that organization to become director and general superintendent of the Standard Woven Fabric Co., of Framingham, Massachusetts. Mr. Gleason is well known as the originator and for a score of years the producer of the products of the Massachusetts Chemical Co. His knowledge of friction materials and insulating compounds comes from long experience in these lines, and he will prove a valuable addition to the Standard organization. Mr. Gleason has not only been prominent in rubber circles, but for years he took a leading part in the civic affairs of Walpole, where he was for some time president of the Board of Trade and of the Walpole Co-operative Bank.

MR. A. H. MARKS BUYS A YACHT.

Arthur H. Marks, vice-president of The B. F. Goodrich Co., has recently purchased the steel twin-screw cruising gasolene yacht, the "Joyeuse." This yacht is one of the largest gasolene yachts which will be seen in Eastern waters during the coming season. It is 98 feet over all, 16 feet beam, draws 5 feet and was built in 1910. It has a speed of from 14 to 16 miles an hour. Mr. Marks is a member of the Eastern Yacht Club and has a summer home at Marblehead, Massachusetts, where the yacht will be taken after the outfitting now being done at Camden, New Jersey, is completed.

THE BRITISH GOVERNMENT THANKS COMMODORE BENEDICT.

The March number of this publication contained a mention of Commodore Benedict's rescue in West Indian waters of an English sloop a few weeks earlier. The commodore reached New York on April 9, after an 8,000-mile voyage on his yacht the "Oneida," and on arriving at port he was presented by the State Department with a letter from the British ambassador conveying to the commodore an expression of the warmest appreciation on the part of the British government of his rescue of the "Southern Cross" early in February.

When the commodore's yacht reached Antigua news had just been received of the wrecking of the "Southern Cross" in neighboring waters, but there was no steamship available for rescue. The commodore instantly volunteered and set sail for the scene of the wreck. He rescued all the crew and passengers, including the acting commissioner of Montserrat, and towed the disabled sloop into port.

The Commodore expects to visit the Pacific Coast very soon, to be gone about six weeks, accompanied by his two daughters, Mrs. C. B. Harmon and Mrs. Ramsey Turnbull. He will spend some time at the Panama-Pacific Exposition in his capacity as Yachting Commissioner for the State of Connecticut.

MR. BARNES ASSISTANT TO MANAGER OF SALES.

Charles W. Barnes has recently been appointed assistant to the manager of sales of the United States Rubber Co. Mr. Barnes has been connected with the selling department of the United States Rubber Co. ever since the formation of that corporation and carries the thousands of details of the making and distribution of rubber boots, shoes and tennis comfortably under his hat. For a number of years he was connected with the company's Boston office, but, on the theory that nothing was too good for headquarters, he was brought over to New York about a dozen years ago.

PRESIDENT McKECHNIE OF THE CANADIAN CONSOLIDATED.

J. H. M'KECHNIE, who on April 6 was elected president of the Canadian Consolidated Rubber Co., Limited, of Montreal, began his rubber activities close to 40 years ago. He was interested at that time in a saw mill in a small town not far from Granby, Quebec, and he went to Montreal to arrange for the purchase of rubber belting for use in the mill. While there he visited the Goodyear store and noticed a large volume of gossamer coats made by the Goodyear company in the States. He not only got his belting but he got a suggestion, and shortly after returning to Granby he started a factory for making gossamer coats. That was in 1877. But the demand for gossamer coats soon decreased everywhere, and then Mr. McKechnie, together with the late Mr. Miner, started the Granby Rubber Co. for the manufacture of rubber footwear. This corporation, as everyone in the trade knows, was a very successful one and had built up a large and profitable trade when it was merged with the Canadian Consolidated Rubber Co., Limited. Soon after this merger Mr. McKechnie was made vice-president of the consolidated company, and he continued to occupy that position until the withdrawal, at the last annual meeting, of D. Lorne McGibbon as president, when Mr. McKechnie was elected his successor.

J. H. McKECHNIE.

AN INTERESTING ARTICLE BY A. H. ALDEN.

Adelbert H. Alden is the author of a very interesting essay entitled "An American Point of View," published in "The Westminster Gazette," London, for March 19. The article deals very thoroughly with the present American unpreparedness for war. Then it contrasts the unarmed Republic and the armed Empire in their ability to defend their liberties. A very interesting portion of the paper is devoted to an exposition of the subconscious creation of public opinion, particularly in the United States.

CONDITIONS IN MEXICO.

Clarence Harvey, son of the late J. C. Harvey, of Mexico, was recently in New York. He reports that all of the rubber plantations in the state of Veracruz and Oaxaca are practically abandoned. Roving bands of soldiers infest the whole country and the Americans and English who were in charge of the estates have gone to Mexico City or left the country. He is now visiting his mother in Los Angeles, and plans to return to the plantation—La Buena Ventura—in June, if it is possible, to recover the fine orchids collected by his father.

MR. HEWINS IN LONDON.

During the early part of last month, E. D. Hewins, the well-known distributor of cotton ducks and fabrics adapted to various purposes in the manufacture of different types of rubber goods and tires, sailed for London, in the interest of his business. Mr. Hewins will visit various parts of England as well as Scotland.

TRADE NEWS NOTES.

The Manhattan Rubber Manufacturing Co., on or about May 1, will remove its New York office from 18 Vesey street to the sixteenth floor of the Equitable building, 120 Broadway.

Johnstone, Whitworth & Co., importers of crude rubber, have removed their offices from 130 Pearl street, New York, to 22-24 William street, in the Farmers' Loan & Trust building.

The Detroit branch of the Pennsylvania Rubber Co., of Jeannette, Pennsylvania, has removed from 864 Woodward avenue to 254 Jefferson avenue.

The Warner Chemical Co., of Carteret, New Jersey, which manufactures sulphur chloride, tetra-chloride of carbon and other chemicals for the rubber trade, has moved its New York offices and sales department from 141 Broadway to 52 Vanderbilt avenue.

Three of the men formerly connected with the Knight Tire & Rubber Co., of Canton, Ohio, have recently joined the McNaull Tire & Rubber Co., of Toledo, Ohio. They are Ole Hilner, formerly sales manager for the Knight company, who now occupies the same position in the McNaull company; P. P. Parker, who was formerly assistant manager of the Knight company, and who now becomes Eastern district manager of the McNaull company, and Thomas Gray, who was Southern district manager for the Knight company, and who has taken a similar position in the McNaull company.

A new tri-car chemical fire engine has just been brought out in New York by the Woodhouse Manufacturing Co. This machine is supplied with Dayton airless tires and carries 200 feet of 3½-inch chemical hose.

NILES & GOODELL INCORPORATE.

The partnership of Niles & Goodell, under which business was formerly conducted at 84 Reade street, New York, has been taken over by the firm of Niles & Goodell, Inc., with offices at 142 Duane street. The officers of the new firm—which was incorporated April 6, with a capital stock of $10,000, and which acts as selling agents for the Converse Rubber Shoe Co., of Malden, Massachusetts, in eastern New York and Pennsylvania, New Jersey, Delaware, Maryland and West Virginia—are: F. R. Goodell, president; C. W. Niles, Jr., vice-president and treasurer, and H. M. Alexander, secretary.

AN IMPROVED HOME EXERCISER.

Among the apparatus recommended by experts as a practical and effective form of physical exercise, by means of which the entire muscular system is subjected to healthful exertion, the striking bag holds a conspicuous place.

The objection made to its use in the home is the noise and vibration it causes and it is in these respects that improvements are claimed for the striking bag platform patented by a boxing instructor in Brooklyn. As the illustration shows, it is equipped with an arrangement of spring arms or buffers, which obviates the drum effect of the ordinary form of construction. This platform is also reversible, the disposition of the steel arms, which can be directed upward or downward, making it a fast or slow speed bag, without changing the inflation. The ease with which it can be installed or removed is also urged by the inventor, who is also the manufacturer. [George Yoerger, Brooklyn, New York.]

LATE RUBBER CUSTOM'S RULINGS.

The Board of General Appraisers passed on two questions of rubber customs on April 28, which will be of interest to the trade. The first case had to do with the importation of "rubber thorns" intended for use in making artificial flowers. The collector had decided that these were dutiable at 60 per cent. ad valprem as parts of artificial flowers. The importers, the Edwards & Riodan Co., contended that they should come in at 10 per cent. as manufactures of rubber, but the board overruled this contention and sustained the Collector.

The other protest was made by the Hanover Vulcanite Co., which imported rubber bulbs. The Collector had returned this merchandise at 15 per cent. ad valorem. The importers contended that the rate should be 10 per cent. under the rubber manufactures' division. This contention was allowed and the Collector reversed.

MR. ROCKEFELLER RELIES ON RUBBER.

TO be sure the average American has reached the philosophic plane where mere money, even when measured by millions, makes no perceptible appeal. Still, when a man is reputed to be the richest man that ever lived, one cannot help but feel something of a friendly interest in him. Now here is a photograph of the man who enjoys that reputation. There are two noticeable features about this picture. One is that, while enjoying an income of, let us say, fifty millions a year—which would enable him to have a "Ford" and even a chauffeur — he still clings to the bicycle for his daily outing, which wholesome enjoyment would be denied him were it not for the rubber pneumatic tire around the wheel. The other noticeable feature of this interesting photograph is the fact that Mr. Rockefeller has his feet well protected in a pair of storm rubbers, though at the time the snap shot was taken there does not appear to have been any storm. But undoubtedly the grass was wet; hence the richest man in the world, using in personal matters the same exceptional sagacity which he has employed in business affairs, duly protected his feet.

JOHN D. ROCKEFELLER.

So this momentary glimpse into the intimate life of a billionaire shows how much he relies upon rubber both for his enjoyment and for the preservation of his health.

TRADE NEWS NOTES.

The Pennsylvania Rubber Co. has reduced the prices of its inner tubes 10 per cent. This reduction, which applies to all the company's brands: "Puregum Red," "Pennsylvania Gray" and "Nugray," was made possible by the increased manufacturing facilities afforded by the company's new plant at Jeannette, Pennsylvania.

The McGraw Tire & Rubber Co., of East Palestine, Ohio, has opened a branch store at 737 Main street, Buffalo, New York, for the sale of its pneumatic tires, inner tubes and solid truck tires.

The plant and business of the Century Rubber Co., of Plainfield, New Jersey, will be sold at public auction on May 21 at the premises of the company. Conditions of the sale may be obtained from the receiver, Frank P. McDermott, 75 Montgomery street, Jersey City. A certified check for $5,000 must accompany each offer, and the successful bidder will be required to deposit 10 per cent. of the purchase price in cash.

The two small dirigibles—175 feet in length—on which the Navy Department recently asked bids, are to be used in experimental work and for training purposes at the aviation school at Pensacola, Florida.

Model aeroplane contests are being held at Concord, Massachusetts, under the direction of Edward P. Warner, of that city. These contests are open to boys operating model aeroplanes driven by rubber bands. Silver and bronze medals are to be awarded.

The Wilson Tire & Rubber Co. is installing machinery in its plant at Springfield, Illinois, and hopes by the middle of May to commence manufacturing; its product to consist of the Wilson puncture-proof pneumatic tire and demountable rim illustrated and described on page 142 of our issue of December, 1913.

Records of production by the Goodyear Tire & Rubber Co., of Akron, show that during March 1,000,000 feet of hose—including all varieties—was turned out by that concern, breaking all previous records of its mechanical goods department.

The truck tire department of the Republic Rubber Co., of Youngstown, Ohio, is reported working overtime on orders for tires for foreign commercial use.

The National Double Tire Co., incorporated at St. Louis, with a capital stock of $16,000, by William Geist, George W. Milius and Adolph Schlesinger, is seeking equipment for a plant to manufacture automobile tires and accessories.

The Hil-Ko Rim Lock Co., of which Frank D. Hiller is president, expects soon to establish a factory for the manufacture of rim locks. The present office of the company is in the Railway Exchange building, St. Louis, Missouri.

The Falls Rubber Co., of Cuyahoga Falls, Ohio, recently purchased additional property on which to erect a new factory building and power house. Excavation work is now nearly completed and contracts are being let for the construction of the plant, which is to be completed by September 1. This addition will be 80 x 200 feet, three stories high.

Balloon racing is to be a feature of the season's sports. The Aero Club of New England is arranging a balloon pursuit contest, to take place in May in Worcester, Massachusetts, and the Aero Club of Pennsylvania plans a similar contest for Philadelphia. At Pittsfield, Massachusetts, where a balloon race was held last October, a trophy has been put up by the president of the Aero Club of America for an annual contest. The "Dancing Doll," operated by Leo Stevens, will be used at the Pittsfield meet again this year as the "king" balloon to lead the pursuit.

The Rome Wire Co., which manufactures insulated and other electrical wires, is building a small addition, 40 x 75 feet, to its plant at Rome, New York.

MORE MILEAGE RECORDS.

The March number of "Staggard," the interesting house organ of the Republic Rubber Co., of Youngstown, Ohio, contains a record of a Staggard casing that has been run for 30,000 miles without ever being off the rim; also a record of 16,176 miles' service given by another Staggard tire, which is still being carried for emergency use.

ASSOCIATION MEETINGS, EXPOSITIONS, ETC.

The American Cotton Manufacturers' Association held its annual meeting, April 13 to 14, at Memphis, Tennessee.

The National Association of Cotton Manufacturers held its annual meeting, April 28 to 29, at Boston.

The National Association of Manufacturers will hold its twentieth annual meeting, May 18 to 19, at the Waldorf-Astoria, New York.

The American Society for Testing Materials will hold its regular annual meeting, June 22 to 26, at the Hotel Traymore, Atlantic City.

The annual meeting of the American Automobile Association will be held, May 18 to 19, at Boston.

The annual Electrical Exposition and Motor Show will be held, October 6 to 16, at the Grand Central Palace, New York.

The nineteenth annual meeting of the National Fire Protection Association will be held May 11-13 at the Hotel Astor, New York.

S. A. E. STANDARDS COMMITTEE MEETING.

The Standards Committee of the Society of Automobile Engineers held its spring meeting in the new offices of the society in the Bayer building, Detroit, on April 22. Several other divisions of the S. A. E. held meetings the same day in Detroit. The meeting of the Standards Committee extended throughout the day and reports were received from the several divisions and sub-committees of the association. This committee is made up of 150 designers and manufacturers of automobiles and automobile parts, and it is divided into 14 divisions and sub-committees of which 11 submitted reports at this meeting.

The practices and standards which the S. A. E. has from time to time recommended have been of great help to the automobile and allied industries in reducing and simplifying the work of the various departments of these industries through the creation of standards which have been readily adopted. For instance, before the advice of the S. A. E. was heeded, wheel manufacturers were obliged to make wheels to fit each individual band, and for each make of tire a different width was required. It is said that the adoption of the S. A. E. standards has reduced the price of motor truck wheels by 20 per cent.

RECEIVER APPOINTED FOR SAFETY TIRE & TREAD CO.

Upon the application of creditors and stockholders, a receiver has been appointed for the Safety Tire & Tread Co., which has been operating a small plant in Harrison, New Jersey, appraised at about $2,000. Charles Vail, president of the company and the man chiefly responsible for its organization, who has maintained offices at 29 Broadway, New York, is reported to have disappeared. According to charges filed in the Federal Court of Jersey City, the outstanding capital stock of the company is $42,000, of which amount $25,000 represents payment for a secret process which Vail claimed to control for making new tires out of old, and which the petitioners charge existed only in imagination, while liabilities other than stock subscriptions are estimated at $4,500; there are not visible assets, the stock and equipment of the Harrison factory having been removed some time ago; about $8,000 in cash was paid into the company's treasury last September by stockholders, and the largest individual loser is H. Q. Foreman, who is reported to have invested $4,000 in stock and to have later loaned the company $500 in cash.

NEW INCORPORATIONS.

A. L. A. Tire Co., March 19, 1915; under the laws of Delaware; authorized capital, $500,000. Incorporators: Charles B. Bishop, Clarence J. Jacobs and Harry W. Davis—all of Wilmington, Delaware. To purchase, sell and deal in and with all kinds of supplies, tools, accessories, etc., in use or incidental to automobiles, motor trucks, etc.

Adams & Co., Inc., Louis R., April 20, 1915; under the laws of New York; authorized capital, $5,000. Incorporators: Louis R. Adams and Mary B. Adams—both of Rowayton, Connecticut, and Harry W. Soul, 143 Tibbetts road, Yonkers, New York. To manufacture tires, rims, etc.

Anthony Rubber Manufacturing Co., April 1, 1915; under the laws of Rhode Island; authorized capital, $100,000, of which $90,000 is to be common and $10,000 preferred. Incorporators: John Anthony, Attleboro, Massachusetts; Frank Healey and George T. Marsh—both of Providence, Rhode Island. To buy, sell and deal in crude rubber and rubber goods and for the manufacture of rubber goods, tires, rubber belting, etc.

Armour Tread Co., March 17, 1915; under the laws of Connecticut; authorized capital, $25,000. Incorporators: John A. Thomas, Albany, and Charles H. Sims, Corinth—both in New York—and Monroe J. Brewer, East Hartford, Connecticut. To manufacture automobile treads and tires.

Baker Co., Charles, March 9, 1915; under the laws of Massachusetts; authorized capital, $50,000. Incorporators: Charles Baker, 29 Pinckney road; Walter Hartstone, 15 Orkney road, and David A. Marshall, 6 Hartwell street—all in Boston. To deal in rubber, etc., and to manufacture clothing, garments and wearing apparel from said article.

Brown Tube Distributing Co., Inc., March 30, 1915; under the laws of New York; authorized capital, $25,000. Incorporators: Floyd L. Smith and Loyal F. Smith—both of 63 Broad street, Plattsburg, New York—and Charles S. Averill, Hotel Bancroft, Worcester, Massachusetts. To market the "Brown Perfection Tube," etc.

C. C. C. Fire Hose Co., The, March 25, 1915; under the laws of Maine; authorized capital, $50,000. Incorporators: Ernest E. Noble (president), E. V. Mann (treasurer), and Frederick Hale (clerk)—all of Portland, Maine. To manufacture, sell, buy, import and deal in fire hose and other rubber goods.

Chic-Mint Gum Co., March 25, 1915; under the laws of Delaware; authorized capital, $100,000. Incorporators: F. D. Buck, George W. Dillman and M. L. Horty—all of Wilmington, Delaware. To manufacture chewing gum.

Elyria Tire & Rubber Co., The, March 6, 1915; under the laws of Ohio; authorized capital, $250,000. Incorporators: Alexander G. Snow, Edward P. Parshall, Gust. G. Gilbert, Carl W. Neubrand and James L. Lind. To manufacture rubber goods, etc.

Famous Tire & Rubber Co., Inc., April 12, 1915; under the laws of New York; authorized capital, $15,000. Incorporators: Emanuel Newman, William R. Jackson and William A. Ihne—all of 391 Fulton street, Brooklyn, New York. Tire business.

Franklin Auto Shoe Co., March 25, 1915; under the laws of Indiana; authorized capital, $10,000. Incorporators: William Featherngill, S. W. Featherngill, and Thomas M. Hardy. To manufacture a patent auto shoe.

Guelph Tire & Rubber Co., Limited, March 31, 1915; under the laws of Canada; authorized capital, $350,000—4,000 common shares of $25 each, 5,000 preferred shares of $50 each. Incorporators: Alexander Henry Davidson, Southampton; Thomas Nairn Dunn, Strathroy; Archibald Orr, Gideon Grant, John Henry Legge Patterson, Frank Dyche Law—all of Toronto—and Christian Roth Miller, Berlin—both in Ontario, Canada. To manufacture rubber goods.

Keene Shock Absorber Co., The, March 29, 1915; under the laws of New Jersey; authorized capital, $125,000. Incorporators: George A. Keene, Peter E. Wurfflein and A. Dayton Oliphant—all of Trenton, New Jersey. Principal office, Room 805, American Mechanic Building, 137 East State street, Trenton, New Jersey. To purchase or acquire the letters patent of the United States of America granted to George Olsen, covering the manufacture of shock absorbers for heels and arches.

Kurtz-Pincus Co., Inc., March 25, 1915; under the laws of New York; authorized capital, $10,000. Incorporators: Harry Pincus, 180 Ashland avenue; Nathan Kurtz and Ella P. Kurtz—both of 115 Claremont avenue—all in Buffalo, New York. To deal in waste, scrap rubber, etc.

Niles & Goodell, Inc., April 6, 1915; under the laws of New York; authorized capital, $10,000. Incorporators: Charles W. Niles, Jr., 53 Pineapple street; Frank R. Goodell, 170 Woodruff avenue—both in Brooklyn, New York—and Howard M. Alexander, Newark, New Jersey. To manufacture footwear, rubbers and rubber goods.

Paramount Rubber Products Co. of New York, Inc., April 13, 1915; under the laws of New York; authorized capital, $1,000. Incorporators: Blanche V. Bacon, William F. Bacon and Emma B. Becker—all of Waterloo, New York. To manufacture rubber goods of all kinds.

Royal Tire & Rubber Co., The, March 27, 1915; under the laws of New Jersey; authorized capital, $125,000. Incorporators: Wallace D. Fuerth, 7 Howard street; Bernard C. Cohn, 66 Elliott street, and David Fuerth, 7 Howard street—all in Newark, New Jersey. To manufacture and sell at wholesale and retail automobile tires, inner tubes, and all other automobile supplies and accessories.

Rubber Regenerating Co., Limited, The, March 22, 1915; under the laws of Canada; authorized capital, $200,000—2,000 shares of $100 each. Incorporators: Charles Macpherson Hold, Errol Malcolm McDougall, Gilbert Sutherland Stairs, Pierre Francois Casgrain and John Buchanan Henderson—all of Montreal, Quebec. To manufacture rubber goods of various kinds.

Self Sealing Inner Tube Co., April 10, 1915, under the laws of Delaware; authorized capital, $125,000. Incorporators: Carl Van der Voort, L. C. Rowland, F. M. Casey—all of Pittsburgh, Pennsylvania. To manufacture and sell automobile tire tubes, tires, automobile accessories and rubber goods of all kinds.

Ullman & Solomon, Inc., April 5, 1915; under the laws of New York; authorized capital, $25,000. Incorporators: David Solomon, 839 West End avenue; Stuart M. Kohn, 440 Riverside Drive—both in New York City—and Herman V. Ullman, 6037 St. Lawrence avenue, Chicago. To manufacture raincoats and other apparel.

Walsh Tire & Rubber Co., April 14, 1915; under the laws of Delaware; authorized capital, $100,000. Incorporators: F. R. Hansell, Philadelphia, and George H. B. Martin and S. C. Seymour, of Camden, New Jersey. To manufacture, buy, sell and deal in tires, automobiles, etc.

Washington Rubber Bag Co., Inc., April 12, 1915; under the laws of New York; authorized capital, $1,000. Incorporators: Israel Scolnik and Joseph Scolnik—both of 1359 Clay avenue, and Sigmund Spielberger, 43 Second avenue—all in New York City. To manufacture bathing bags, etc.

White Manufacturing Co., The, March 31, 1915; under the laws of Ohio; authorized capital, $10,000, divided into 100 shares of $100 each. Incorporators: I. J. Cooper, W. L. Busch, Wilson C. Latta, A. H. Apking and F. W. Cooper. To manufacture rubber goods.

The Columbia Tire & Rubber Co., formation of which was mentioned on page 397 of our April issue, has elected its officers and directors. Charles Hoffman has been elected president; W. G. Henne, vice-president and general manager; Jesse E. LaDow, secretary, and Walter F. Henne, treasurer. The board of directors is composed of these officers, together with J. C. Henne, William Islay and J. E. Schauer.

TRADE NEWS NOTES.

The Fisk tire, made by the Fisk Rubber Co., of Chicopee Falls, Massachusetts, was displayed at the auto show held at Phoenix, Arizona, late in March, an agency for its sale having been established in that city, with the Kenyon Tire Supply Co. The Fisk company has also established a direct factory branch in Salt Lake City, Utah, at 163 East Broadway.

The Warner Rubber Co., of 68 Huntington avenue, Boston, distributors of the Quaker tire, made by the Quaker City Rubber Co., of Philadelphia, has taken over and will continue the tire and accessory business of the Back Bay Motor Supply Co., located at the same address.

The Milwaukee Tire & Rubber Co. has taken an agency for the State of Wisconsin and part of Michigan for the sale of Marathon tires, made by The Marathon Tire & Rubber Co., of Cuyahoga Falls, Ohio. L. J. Engel and J. J. Griffin, who compose the firm, were both formerly with the Standard Racine Rubber Co. The headquarters of the company are at 456 Milwaukee street, Milwaukee.

The Kelly-Springfield Tire Co., of Akron, Ohio, has opened a factory branch at Dallas, Texas, in charge of H. L. Smith.

The Dreadnaught Tire & Rubber Co., of Baltimore, which recently installed a new mill, is at present working on the foundation of a vulcanizer, which will increase the number to four. It is stated by the management that both equipment and floor space will soon be further increased.

The Maibohm Rubber Co., now in process of organization at Chicago, contemplates the erection of a plant in that city for the manufacture of a new type of non-skid tire on which a patent has recently been secured.

The plant of the Parker Hammerton Manufacturing Co., at Saugus, Massachusetts, was considerably damaged early in April by the explosion of dynamite in work of excavating for a garage foundation on a site across the street from the factory. Rocks—some of them weighing, it is said, from 200 to 300 pounds—were hurled through the side of the factory, where 60 operatives were at work, every window in that side of the building being broken.

The sale of the Walpole Tire & Rubber Co., of Walpole, Massachusetts, to a committee of New York creditors—which has been pending for several weeks—was confirmed by the federal court on April 12. Shareholders of the company who offered $20,000 over the price at which this property was sold at auction have given notice that they will appeal from the decree of confirmation.

The Royal Tire & Rubber Co., whose main office and salesrooms are located at 267 Halsey street, Newark, New Jersey, has commenced the manufacture of automobile and motorcycle tires and tubes at a factory in Brooklyn, New York. The brand "Royal" will be applied to the first products of the factory, later manufactures to be made under special brands.

A factory has been purchased at Mt. Clemens, Michigan, by the Auto Tire Armor Co., for the manufacture of automobile tires, and equipment is being installed. This company, of which Jay Baldwin and A. A. Bennett are the principal stockholders, is capitalized at $10,000.

The Alling Rubber Co., of Springfield, Massachusetts, recently instituted a novel contest among the school children of that city, in which prizes were awarded in the form of raincoats, gloves and rubbers. Each child was invited to designate, in a statement of 20 words, the best way to locate the Alling rubber store so that everyone who read the company's advertisement would know just where to go, prizes being given for the best replies.

A MODEL BROOKLYN PLANT

OCCUPYING an entire block on Atlantic avenue, Brooklyn, and proportionate territory on two connecting streets, stands the imposing gray stone plant of A. Schrader's Son, Inc., manufacturers of the well-known Schrader tire valve, tire gage, dust cap and valve tool. In addition to these valuable and widely-distributed devices, this company makes the diving apparatus in use by the United States Government, and naturally recognized as standard.

The factory is of steel construction throughout and absolutely fireproof, in addition to which, by way of "making assurance doubly sure," each floor is equipped with an automatic sprinkler system. The front entrance, on Atlantic avenue, and the stairway leading to the first floor are of bronze, giving an exceedingly artistic and substantial effect. Connected with the main factory building is a large garage and automobile repair shop, which houses the two large electric trucks and the various motor cars in use by factory officials.

PLANT OF A. SCHRADER'S SON, INC.

The power plant, which includes a complete electric equipment, is modern in every respect and has an automatic coal-handling and ash-disbursing system. The power plant reflects, as does every other department, a carefully conceived theory of the highest efficiency at the smallest cost.

The offices are light and commodious, accommodating a large staff and a very busy one. The various departments of manufacturing, assembling, shipping and receiving are always working full capacity. The company has in its employ practically a thousand people, for whose convenience and welfare every provision has been made. Among the facilities for the promotion of the comfort and health of the employes are two large and well-appointed lunchrooms, a thoroughly appointed hospital department, with nurse in attendance, and the provision of umbrellas during inclement weather, as well as a supply of dry stockings for the young women in case of wet feet. Libraries and reading rooms are also provided and open to use by employes.

The manager of this plant and the man to whose genius and kindliness this model factory and these agreable conditions are due, is M. C. Schweinert, who is favorably known to tire manufacturers, not only in this country but in England as well, where the company has a very large plant.

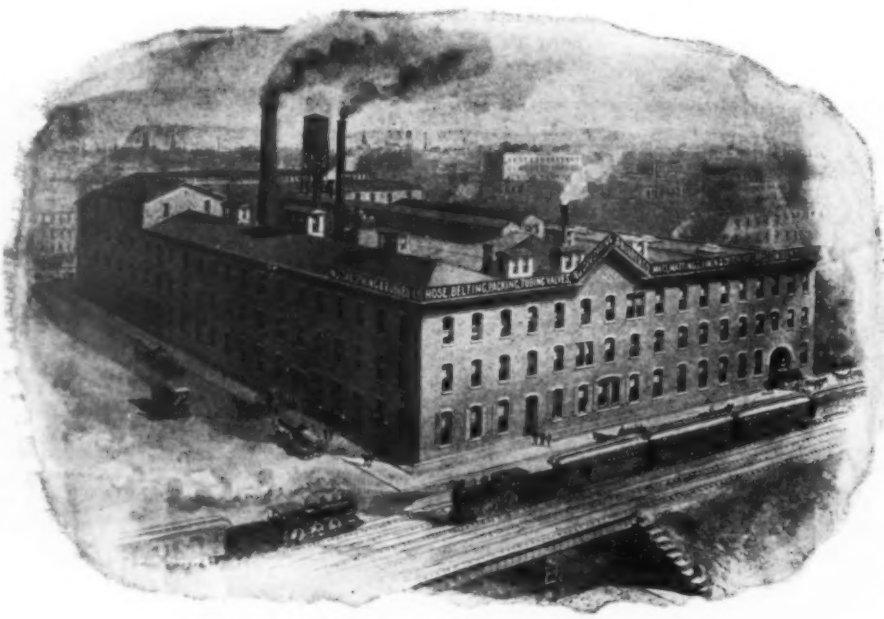
THE PIONEER ASPHALT CO.

The old American Asphaltum & Rubber Co. has been reorganized under the name of The Pioneer Asphalt Co., which will resume the manufacture of "Pioneer M. R." at the mills in Lawrenceville, Illinois, formerly occupied by the American company.

THE NEW JERSEY CAR SPRING & RUBBER CO.

IN 1858 the late John J. Fields established a company under the title of the Elastic Cone Spring Co., on Cortlandt street, in New York City, for the manufacture of rubber car springs, which at that time had come into very general use. Within a few years, however, the spiral coil steel spring was invented, and this gradually displaced the rubber car springs, compelling the Elastic Cone Spring Co. to devote its attention to other lines of manufacture. It moved over to Jersey City and a little later was re-incorporated under the name of the New Jersey Car Spring & Rubber Co., under which name it has continued doing business up to the present time.

After the rubber car spring had practically gone out of use the company began the manufacture of sheet packing, valves and other molded articles. Then it added a hose department, later a belting department, and finally branched out into the general manufacture of mechanical rubber goods, including belting for transmission, conveyor and elevator use. About five years ago it added an automobile tire department to its already extensive lines, and it has met with excellent success in this new department. That the company's products are of the permanently satisfying kind is proved by the fact that it has many accounts on its books that have been there for 20 years and over.



PLANT OF THE NEW JERSEY CAR SPRING & RUBBER CO.

The present officers of the company, all of whom are active in its management, are as follows: President, John J. Fields; vice-president, George B. Dickerson; treasurer, Townsend Cocks; secretary George E. Jeandheur; assistant treasurer, John J. Fields, 3rd.

The company's works and main office are still in Jersey City, where they were established 50 years ago; and, in addition, it has branches in New York, Philadelphia, Pittsburgh, Cleveland, Chicago and Los Angeles, with distributing centers in almost all of the principal cities of the country.

THE R. J. CALDWELL CO. WINS ITS SUIT.

The R. J. Caldwell Co., of New York, won the suit which it recently brought in the Supreme Court, Kennebec County, Maine, against the Cushnoc Paper Co., of Augusta, that State. The Caldwell company sued the defendant for breach of contract, in failing to pay for a number of dryer felts, which the defendant admitted having received. The paper company cited by way of defense that the plaintiff had failed to keep its part of the contract, but the jury, after brief deliberation, brought in a verdict for the Caldwell company against the local corporation.

SWINEHART FACTORY ADDITION.

The Swinehart Tire & Rubber Co. is adding a three-story steel and brick building, 122 x 105 feet, to its plant at Akron, Ohio, which it expects to have ready for occupancy by the first of July. This building will be used for the extension of the pneumatic and truck tire departments, which are to be located on the first and second floors, and for the company's general offices, which will be on the third floor. In it will also be located a new and up-to-date hospital, as well as rest rooms for the employes. The addition to the line of a demountable and pressed-on type truck tire for heavy duty trucks, made in both the cellular and plain tread styles, is responsible in part for these changes.

A JOBBING HOUSE ENTERS THE FIELD OF MANUFACTURES.

Negotiations are reported pending between The Independent Rubber Co., of Akron, and the Chamber of Commerce, of Barberton, Ohio, for the establishment of a tire manufacturing industry in the latter city. The Independent company, at present engaged in the jobbing business, has announced its intention of entering the manufacturing field, and if satisfactory arrangements can be made, would occupy the old factory of the Summit Rubber Co., at Barberton. These arrangements include a $30,000 subscription by the Trade Board to the stock of the company.

FRAUD AND CONSPIRACY ALLEGED.

William A. Ellis, president of the Ellis-Ward Co., of 817 Boylston street, Boston, dealers in rubber tire goods, and Elsie G. Morehouse, acting treasurer of the company, are under indictment in Boston—the former for larceny and the latter for making false entries on the books of the company with intent to defraud. It is alleged that the defendants were doing a separate business under another firm name and that they connived to pay with Ellis-Ward money for purchases made for the other concern.

S. & M. TIRE CO. FINANCING.

A petition recently filed by the Board of Trade of Coshocton, Ohio, brings to light some interesting details of the alleged operations of those concerned in the promotion of the S. & M. Tire Co., incorporated under the laws of Ohio January 1, 1913, with a capital stock of $20,000, and to which the Board furnished a factory and plant valued at $30,000. The incorporators were Alois Michler, Ervin S. Kintz and Charles M. Smith. The petition, asks that a receiver be appointed. In securing the factory site and plant representations were made that the company would commence operations, with a force of at least 100 men, not later than August 1, 1913, manufacturing rubber and metallic tires and accessories for vehicles and other rubber products, but work was never started.

REPORT OF THE CANADIAN CONSOLIDATED RUBBER COMPANY, LIMITED.

PRESIDENT D. LORNE McGIBBON, of the Canadian Consolidated Rubber Co., Limited, submitted on April 6 his annual report covering the year ending December 31 last. "The volume of business done in 1914," the president states, "maintained that of 1913 when the reduction made in selling prices is considered. The whole volume of sales was only 7.98 per cent. less than 1913, while reductions in prices were made of a larger percentage on all rubber goods. This maintenance of volume was obtained, notwithstanding what was probably the most discouraging year that Canada has experienced, due to the great European war and also the disappointing conditions west of the Great Lakes. In spite of the unfavorable financial conditions during the entire year we experienced very little difficulty in making satisfactory collections from retailers both in the East and the West. Losses by bad debts were only slightly increased and ample provision therefor has been made."

He goes on in his report to speak of the fact that the company now owns the whole capital stock of each of its constituent companies, having during the year acquired all the outstanding shares of the Canadian Rubber Co. of Montreal, Limited. He states that the company's tire plant has been in operation throughout the year, with very satisfactory results. He anticipates a successful year for 1915, but says that "under existing conditions no heavy increase in sales should be looked for."

The financial statement of the company is given in full below:

COMBINED STATEMENT CONSOLIDATED AND CONSTITUENT COMPANIES—DECEMBER 31, 1914.

ASSETS.

Property and plants		$5,452,122.92
Inventories, manufactured goods and materials	$2,939,429.49	
Cash	57,363.21	
Accounts receivable	1,110,418.81	
Investments, including good will	4,404,904.76	
Miscellaneous	163,856.13	
		8,675,972.40
		$14,128,095.32

LIABILITIES.

Preferred capital stock	$1,980,000.00	
Common capital stock	2,805,500.00	
		4,785,500.00
Six per cent. bonds due October 1, 1946		2,600,000.00
Bills payable		3,914,634.23
Accounts payable	$374,279.39	
Mortgage on real estate	1,200.00	
		375,479.39
Reserve for bad debts, depreciation, etc		105,217.71
Surplus		2,347,263.99
		$14,128,095.32

INCOME.

Net sales, footwear, tires, mechanical and miscellaneous	$6,245,818.83
Cost of goods sold, selling and general expenses and taxes	5,282,833.95
Operating profit	$962,984.88
*Other income	145,860.34
Gross income	$1,108,845.22
Bond interest, cash discounts to customers, provision for bad debts and interest on borrowed money	629,663.45
Net income	$479,181.77
Expenses previous period not provided for	38,868.51
Surplus for period	$440,313.26
Dividends declared and paid, preferred 7% } Dividends declared and paid, common 3% }	222,688.50
Net addition to surplus	$217,624.76
Surplus, January 1, 1914	2,129,639.23
Surplus, December 31, 1914	$2,347,263.99

*Includes a profit on the sale of land, $78,388.67.

OFFICERS AND DIRECTORS OF THE CANADIAN CONSOLIDATED COMPANY.

At the annual meeting of the shareholders held April 6, D. Lorne McGibbon and Duncan Coulson retired from the directorate. All the other directors were re-elected, and W. H. Robinson, of Granby, Quebec, was added to the board. The board as now constituted is composed of the following members: J. H. McKechnie, T. H. Rieder, Walter Binmore, R. E. Jamieson, Victor E. Mitchell, E. W. Nesbitt, W. H. Robinson, Col. S. P. Colt, Homer E. Sawyer, E. S. Williams, R. B. Price, W. G. Parsons, A. J. Kimmel.

This leaves two vacancies on the board, no one having been elected to succeed the late Fleetwood H. Ward.

At a meeting of the directors, following the shareholders' meeting, the following officers were appointed: J. H. McKechnie, president; T. H. Rieder, vice-president and general manager; Walter Binmore, treasurer; W. A. Eden, secretary; R. C. Colt, assistant secretary; A. Dwyer, assistant treasurer.

THE 30TH BATTALION (CANADIAN) WEARS ARCTICS.

The April number of "The Dominion," published monthly by the Canadian Consolidated Rubber Co., Limited, of Montreal, Quebec, contains an interesting illustrated paragraph supplied by J. A. McKenzie, manager of the company's branch at Victoria, British Columbia. The illustration shows a battalion of some 1,200 men which recently left Canada for England, marching through a street in Victoria; and the paragraph states that each man was equipped with a pair of two-buckle "Jacques Cartier" arctics, supplied by this branch.

ANOTHER CANADIAN RUBBER MAN GOES TO THE FRONT.

Lieutenant-Colonel A. S. Massie, manager of the St. John Division of the Canadian Consolidated Rubber Co., Limited, has gone to the front, as the commanding officer of the Divisional Train, Army Service Corps, of the 2nd Canadian Contingent.

AJAX TIRE MILEAGE CONTEST.

The Ajax-Grieb Rubber Co. has announced the results of its annual up-keep contest in pneumatics, which is open to employed chauffeurs only. The winner of the first prize covered 21,985 miles, and 30 of the cash prize winners averaged 16,509 miles per tire, which is nearly equal to the record of the first prize winner of last year's contest, who covered 16,782 miles. This is the second year of this contest, and it will be continued for 1915-16 on the same lines. Blanks to be filled out by chauffeurs desiring to enter the contest have been supplied to all Ajax dealers. There will be 208 prizes, amounting to $5,000.

THE MORGAN & MARSHALL COMPANY.

At the annual meeting of The Morgan & Marshall Rubber & Tire Co., held at the office of the company in East Liverpool, Ohio, on April 5, the following officers were elected: Patrick McNicol, president; W. A. Hobbs, vice-president; Joseph Betz, secretary and treasurer. These three officers, with R. J. Marshall, D. M. Cronin, Con. Cronin, William Erlanger, W. H. Cochrane, J. H. Cramer, A. F. Ulrich and R. M. Gilleland, were elected to serve as directors for the ensuing year.

This company has effected a new sales organization and will have ready to put on the market by May 1 a new M. & M. red tread tire.

TIRE DISTRIBUTORS ORGANIZE.

At a luncheon early in April plans were made for the formation of an organization, later effected, at Columbus, Ohio, to be known as the Columbus Para Club, membership in which is confined to automobile or motor truck tire distributors. Representatives of the Goodyear Tire & Rubber Co., the Firestone Tire & Rubber Co., and the Kelly-Springfield Co., of Akron; the Racine Rubber Co., of Racine, Wisconsin; the Lee Tire & Rubber Co., of Conshohocken, Pennsylvania, and the United States Rubber Co., of New York, were present at the luncheon and became members of the club.

REPORT OF RUBBER GOODS MANUFACTURING CO.

THE Sixteenth Annual Report of the Rubber Goods Manufacturing Co., dated April 8, 1915, was distributed to the stockholders of that company the last of March. The report of the president, which is brief, and the report of the treasurer, are given in full below:

THE PRESIDENT'S REPORT.

TO THE STOCKHOLDERS OF THE RUBBER GOODS MANUFACTURING CO.:

Two considerations materially affected the amount of our sales for the year 1914. The first was the lower level of tire prices, which reduced the amount of sales, although the total number of tires sold was in excess of the previous year. The second was the general business depression due to the European war. This affected our volume of business in mechanical and miscellaneous lines, these lines being very sensitive to general railroad and industrial conditions.

Notwithstanding the reduction in our sales, our total profits were only slightly less than the preceding year, owing to our policy of increasing efficiency and reducing expenses. This has been specially marked in the tire department, as we have made very great decreases in the selling expenses and have adopted a policy of concentration of factory production by which all casings will be made at Hartford and Detroit only, and all motorcycle and bicycle tires are concentrated in Indianapolis.

The report of the treasurer appended hereto gives the consolidated general balance sheet and consolidated statement of the Rubber Goods Manufacturing Co. and its subsidiary companies for the fiscal year ending December 31, 1914.

Respectfully submitted,
ELISHA S. WILLIAMS, PRESIDENT.

THE TREASURER'S REPORT.

RUBBER GOODS MANUFACTURING CO. AND SUBSIDIARY COMPANIES.

CONSOLIDATED GENERAL BALANCE SHEET, DECEMBER 31, 1914.

ASSETS.

Property, Plants and Investments		$33,132,454.41
Inventories, Mf'r Goods and Materials	$7,479,802.78	
Cash	3,115,153.38	
Bills and Accounts Receivable	7,283,172.40	17,878,128.56
Stock Owned in General Rubber Co.	$1,666,700.00	
Securities Owned	384,030.55	2,050,730.55
Sinking Fund Cash in Hands of Trustee		446,708.30
Miscellaneous Assets		429,793.60
Total Assets		$53,937,815.42

LIABILITIES.

Capital Stock, Preferred	$10,351,400.00	
Capital Stock, Common	16,941,700.00	
Capital Stock, Subsidiary Companies	3,537,500.00	$30,830,600.00
Bonds of Mechanical Rubber Co., and N. Y. Belting and Packing Co.		852,500.00
Bills and Accounts Payable		7,783,533.07
Accounts Payable to General Rubber Co.		2,813,746.54
Reserve for Federal Income Tax		48,597.35
Reserve for Accidents to Employes		106,577.78
Fixed Surplus (Subsidiary Companies)		2,499,218.65
Surplus		9,003,042.03
Total Liabilities		$53,937,815.42

Contingent liabilities for certain guarantees, which are offset by corresponding contingent assets, are not included.

CONSOLIDATED SUMMARY OF INCOME AND PROFIT AND LOSS FOR THE YEAR ENDED DECEMBER 31, 1914.

Earnings		$2,804,625.96
Income from Investments		141,669.50
		$2,946,295.46
LESS:		
Expenses of Home Office	$94,272.97	
Interest on Bonded and Floating Debt	610,205.16	
Federal Income Tax, 1914	48,597.35	753,075.48
NET PROFITS		$2,193,219.98
*Dividends		2,143,983.66
Surplus for the Period		$49,236.32
Surplus and Working Capital, January 1, 1914	$8,576,509.94	
Bond Redemption Reserve Transferred to Surplus	377,295.77	8,953,805.71
Surplus and Working Capital, December 31, 1914		$9,003,042.03

Respectfully submitted,
E. J. HATHORNE, Treasurer.

*Includes $233,466.66 paid minority interests in subsidiary companies.

THE DIRECTORS AND OFFICERS OF THE RUBBER GOODS MANUFACTURING COMPANY.

At the annual meeting of the Rubber Goods Manufacturing Co., held April 8, the following directors were elected for the coming year: Walter S. Ballou, Nicholas F. Brady, Charles C. Case, Samuel P. Colt, James B. Ford, Ernest Hopkinson, Charles A. Hunter, Lester Leland, Raymond B. Price, Homer E. Sawyer, Elisha S. Williams. The only new member of the board is Charles C. Case, who was elected in place of Frank W. Eddy, deceased.

The following were elected members of the executive committee: Walter S. Ballou, Nicholas F. Brady, Samuel P. Colt, James B. Ford, Lester Leland, Raymond B. Price, Homer E. Sawyer, Elisha S. Williams.

One new office was added, namely, an additional vice-president, to which position Charles C. Case was elected. The following are the company's officers for the coming year: Elisha S. Williams, president; Charles A. Hunter, vice-president; Lester Leland, vice-president; Charles C. Case, vice-president; Edward J. Hathorne, treasurer; John D. Carberry, assistant treasurer; Samuel Norris, secretary; John D. Carberry, assistant secretary.

TRADE NEWS NOTES.

It has been estimated, from figures given out at the recent Boston automobile show, that the people of New England during the present year will spend $58,500,000 on passenger vehicles and parts. Of this amount, the estimate for tires is $17,000,000 and for other accessories $4,500,000. The combined purchases of tires and accessories in 1914 amounted to $18,100,000.

Tire manufacturers will be interested to know that the Chicago board of aldermen has under consideration the establishment of a municipal motor omnibus system. The commissioner of public service has made a preliminary report on routes, with estimates on vehicles and installment of the system. The brief period required to put such a system in operation, and thus relieve present congestion, is mentioned in favorable contrast to the time that the construction of subways or other rail lines would take. Such a system adopted by the city of Chicago and working out satisfactorily would probably lead to similar installations in many parts of the country.

The F. S. Carr Co., of Boston, which manufactures waterproof materials for automobile tops, has opened a branch in Detroit, at 971 Woodward avenue.

Hermann Weber, New York representative of J. Schnurmann, of London, engaged in the scrap rubber business, has moved his offices from 150 Nassau street to the Terminal building, 30 Church street.

Some tire purchases of more than usual size have lately been reported, one of these being the purchase by the Ford Motor Co. of 137 carloads of automobile tires, while another was the purchase by a large bicycle manufacturer of 76,647 pairs of Goodrich and Diamond brands of bicycle tires.

The Copithorne Rim & Tire Co., Inc., has made arrangements for the location of a plant at Attleboro, Massachusetts, for the manufacture of quick detachable rims. The company purposes the erection of a plant that will give work at the start to about 500 men.

The Perfection Tire & Rubber Co., of Chicago, has acquired a site at Fort Madison, Iowa, for a manufacturing plant. Work on the new buildings—the cost of constructing and equipping which has been estimated at $90,000—will be rushed, and it is hoped to commence operations by August 1, with an initial capacity requiring 200 operatives.

At Calgary, in the Canadian Province of Alberta, machines for vending chewing gum are under the ban of the law, being classified as gambling instruments.

The Obituary Record.

ARTHUR L. KELLEY.

ARTHUR LIVINGSTON KELLEY, for many years president of the Mechanical Fabric Co., died at his home in Providence, Rhode Island, on April 7, after an illness lasting several years.

Mr. Kelley was born in Canton, New York, on April 17, 1858, son of Joseph Ham and Samantha Westcott Kelley. He was ninth in descent from Stukeley Westcott, who came to Providence with Roger Williams. He attended the village schools in Canton and Potsdam. During his spare time he worked in the printing office at Potsdam, where he learned the printer's trade and published an amateur paper for about two years. Later he went to Lawrence, Massachusetts, where he attended the high school and then Phillips Andover Academy, from which he graduated in the class of 1876. After graduation he entered the employ of Stedman & Fuller Card Clothing Co., of Lawrence. In 1885, owing to increased business, he and Mr. Fuller moved the plant to Providence. The business was later sold to the American Card Clothing Co., and Mr. Fuller and Mr. Kelley founded the Mechanical Fabric Co., with the former as president, the latter as vice-president and manager. Mr. Fuller died in 1899 and since then Mr. Kelley had been president, with his late brother, Edward B. Kelley, as treasurer. Mr. Kelley was president of the Rubber Goods Manufacturing Co. for two years, president of the Narragansett Electric Lighting Co. of Providence, since 1908, director of the Providence Journal Co., United States Rubber Co. and several other manufacturing and insurance companies. He was junior warden of Grace Church and a member of Hope Club, Agawam Hunt Club and Sons of the American Revolution. In 1878 he married Lotta Persis Fuller who, with his two sons, Arthur Livingston Kelley, Jr., and George Fuller Kelley, survives him.

ARTHUR L. KELLEY.

CAPTAIN TRUMBULL WARREN KILLED IN ACTION.

The January number of THE INDIA RUBBER WORLD contained a paragraph stating that Trumbull Warren, president of Gutta Percha & Rubber, Limited, of Toronto, Canada, had gone to the front and had been appointed assistant adjutant of the headquarters staff on Salisbury Plain in England. The sketch was accompanied by a reproduction of a photograph showing Captain Warren in the uniform of the 48th Highlanders of Canada.

On April 21 a cable was received stating that Captain Warren had been killed in action. Few details were given, but it was said that he was killed by a piece of shrapnel while leading a charge on the German trenches and that he was within 50 yards of the enemy's battle line when he was struck. The news caused the most widespread mourning in the city of Toronto, where, notwithstanding his youth, he had become a very prominent figure.

Trumbull Warren was born in 1886 in London, the son of H. D. and Sarah Van Lennep Warren—both at that time citizens of New York. The following year the family moved to Toronto and shortly after his father established the Gutta Percha & Rubber company. Young Warren graduated at Upper Canada College when about 18 years of age, and, being deeply interested in military affairs, immediately entered the Royal Military College at Kingston, from which he graduated in 1907. He then entered his father's company and made a thorough study of rubber manufacture. Four years ago, on the death of his father, he became treasurer of the company, and two years ago became president, while retaining the position of treasurer. He applied himself to the duties of these offices with great zeal and the company was very successful under his management.

When the war broke out he was one of the first of the Canadians to enlist, and when the troops with which he was connected left England for the field of active operations he was made captain of a company in the Canadian infantry.

Though only 29 years of age, he had established a most enviable place, not only in the business life of Canada but also in its social life. He was an active member of a number of the leading clubs of Toronto. A few years ago he married Miss Marjory Braithwaite, the daughter of a well-known Montreal banker. He left two children, little girls of two and three years of age. He is survived, also, by two younger brothers, Harold D. and Frederic A., and a sister, Mrs. Charles S. Band, of New York City.

C. E. AKERS.

Information has been received of the death, in England, of C. E. Akers, the author of the "Report on the Rubber Industry of the Orient" and of the "Report on the Amazon Valley, Its Rubber Industry and Other Resources."

Mr. Akers was born in the Isle of Jersey in 1861, the son of an English army officer. He was, in turn, a soldier, a newspaper correspondent and special commissioner for the British government. It is in connection with the special commission undertaken by him in 1912 to investigate the rubber possibilities of both the Orient and the Amazon valley that his work is of particular interest to the rubber trade. He was appointed in that year, with two collaborators, by certain large London and Paris interests, to investigate rubber planting in the East, and the possibilities of rubber planting in the Amazon valley. The greater part of the year 1912 was devoted to these two expeditions, and the voluminous reports which he published early the following year attracted a great deal of attention. They were discussed in various issues of this publication, particularly in the issues of April, May, June and July of 1913.

Mr. Akers spent much of the decade between 1893 and 1903 as a correspondent for the "London Times" in North and South America, and while in this country, in 1900, married Miss Charlotte Mabel Dwight, daughter of Colonel James Dwight, of Stockbridge, Massachusetts, who, with two daughters, survives him.

ELIAS L. TOY

Elias Toy, president and general manager of the Buffalo Rubber Manufacturing Co., of Buffalo, New York, died at his home in that city March 27. He was 44 years old, and had been interested in rubber manufacture since boyhood. In 1903 he removed from Akron to Buffalo, where he organized the above named company, establishing a plant for the manufacture of rubber goods. He is survived by his wife and three children.

JACOB MUSLY.

The April number of THE INDIA RUBBER WORLD contained a brief mention of the death—which occurred on March 16—of Jacob Musly, senior member of the firm of Weise & Co., of Rotterdam and Amsterdam. The news was received so late in the month as to preclude any more extended notice at that time.

Mr. Musly was one of the notable figures in the rubber trade of the continent. Though only 46 at the time of his death, he had for many years occupied a conspicuous place among the successful rubber dealers of Europe. At an early age he entered the employ of Knottenbelt & Weise, a large importing house in Rotterdam. It was his ambition from the start to thoroughly familiarize himself with the products of the Dutch colonies, and particularly with all questions of distribution, and he applied himself to this task with great zeal. When a few years later the firm with which he was associated dissolved, he went with Mr. Julius Weis, who founded the house of Weise & Co. He was soon taken into partnership, and it was owing not a little to his capacity and energy that the firm soon established a world-wide reputation. It had branches in Java, Sumatra, the Malay States and the Dutch West Indies, and it was the pioneer in Holland in the exploitation of Congo rubber. When the editor of this journal was in Holland in 1908 he visited the office and warehouse of Weise & Co. in Rotterdam and found a great deal there to interest him, which he described in a letter that appeared in the December issue of that year.

JACOB MUSLY.

Mr. Musly became a recognized expert in rubber and balata, and in fact in gums of every sort. He took a great interest in East Indian plantation development and was a director in the following plantation companies: Bajan Sumatra Rubber Co., Dolok Marangir Plantation Co., Langsar Sumatra Rubber Co., Sangkat Rubber Co., and the Colonial Enterprise Co., of Rotterdam, and also a member of the board of administration of the International Association of Rubber Planters of the Hague.

His death means a great loss to the rubber trade of Holland.

HON. CURTIS GUILD.

New England rubber men and members of the Rubber Club feel a sense of personal loss in the passing of the Honorable Curtis Guild. He was known to all of them, and in the days of the club's beginnings was often a guest and speaker at the Boston banquets.

FRANK S. CHICK.

Frank S. Chick, who at one time was a salesman for the Boston Belting Co., died last month, of pneumonia, after a very brief illness, at the residence of Harry E. Converse, at Marion, where he and Mrs. Chick were visiting. After leaving the belting company he became interested in the John H. Pray & Sons Co. as a salesman, and later rose to the management of the large carpet business of that company. Mr. Chick was in his sixtieth year at the time of his death. He leaves a widow and one brother, I. W. Chick, of the United States Rubber Co.

ELNO L. FOSTER.

Elno L. Foster, for the past 22 years an employe of The B. F. Goodrich Co., and lately in charge of the cotton hose department of that concern, died Monday, April 12, in the Akron City Hospital. He was 40 years of age, and is survived by his wife and two children.

JAMES QUINLAN.

James Quinlan, of the Eureka Fire Hose Manufacturing Co., died from heart and kidney trouble on April 10.

He was born in New York State 55 years ago, and immediately upon leaving school, at the age of 14, became associated with the Eureka company, as office boy. He gradually worked his way up, until he became the company's special salesman for the states of New York and New Jersey. His connection with this company continued without interruption for 41 years, and in his position as salesman he made a great number of acquaintances and had a host of friends. He was unmarried.

SENATOR N. W. ALDRICH.

The funeral of Senator Nelson W. Aldrich, which was held in Providence, Rhode Island, April 18, was attended by a number of men prominent in the rubber trade. Senator Aldrich's son, Mr. Edward B. Aldrich, is president of the Continental Rubber Co.

THE LATE HOUSTON M. SADLER.

The late Houston M. Sadler had been so long connected with other enterprises that some of the younger men in the rubber trade may be unfamiliar with the fact that he was ever associated with that industry, but at one time, and for a number of years, he held a prominent position in the rubber trade. When the United States Rubber Co. was formed, in 1892, he became attached to the auditor's department. Very soon after the formation of the company he was appointed cashier, and in 1895 was made the company's credit man. On the death of Mr. M. C. Martin—which occurred in April, 1900—Mr. Sadler was made assistant treasurer, Mr. Charles R. Flint being at that time treasurer. On the death of Mr. Charles L. Johnson, the company's general manager, in October, 1901, Mr. Sadler became acting general manager; but a year or so later he left the rubber company and became a member of the New York Stock Exchange. After engaging in the brokerage business for several years he became secretary of the Computing-Tabulating-Recording Co., of New York City, which position he occupied to the time of his death.

RUBBER IN FIRST AID KITS.

The National Affiliated Safety Organization, whose membership embraces various associations, including the National Association of Manufacturers, of 30 Church street, New York, has put on the market a first aid jar, approved and standardized by the Conference Bureau of Safety and Sanitation. This jar is made of glass and is about 9½ inches in diameter and 6 inches high. In it is packed every material which a conference of physicians experienced in treatment of injuries has agreed upon as necessary for effective first aid treatment. The list includes 26 articles, of which two are medicine droppers having rubber bulbs. Another use of rubber in this connection is in the form of a rubber gasket between the jar and its cover. The jar when filled is set in a metal cage, and the glass cover—in which a carrying handle is molded—is held on the jar by spring clips that are a part of the metal cage. The rubber gasket between the jar and the cover renders the outfit sanitary as far as dust is concerned.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

THE RUBBER CLUB OF AMERICA, INC.

A MEETING of the members of The Rubber Club of America, Inc., was held at the association rooms, 17 Battery Place, New York, April 8, at 3 p. m.

Mr. George B. Hodgman, president of the club, acted as chairman. There was an excellent attendance and much interest was shown in the proceedings of the meeting by the members present. The new constitution and by-laws—the greater part of which were quoted in the March issue of THE INDIA RUBBER WORLD—were adopted.

The following directors were elected to serve until the annual meeting to be held early in January, 1916:

Francis H. Appleton, F. H. Appleton & Son.
William E. Bruyn, L. Littlejohn & Co.
Harry T. Dunn, Fisk Rubber Co.
H. S. Firestone, Firestone Tire & Rubber Co.
George E. Hall, Boston Woven Hose & Rubber Co.
George B. Hodgman, Hodgman Rubber Co.
Frederick H. Jones, Tyer Rubber Co.
William J. Kelly, Arnold & Zeiss.
Homer E. Sawyer, United States Rubber Co.
Henry Spadone, Gutta Percha & Rubber Manufacturing Co.
Elisha S. Williams, Rubber Goods Manufacturing Co.
Bertram G. Work, The B. F. Goodrich Co.

Mr. Albert Zeiss stated that he had a matter to bring before the meeting which he believed all would agree was of the first importance. The situation which had been brought about through the British embargo on exportations of plantation rubber from the Federated Malay States and Ceylon had menaced the American rubber industry, and for a time it had looked as though many of the mills would have to close. He believed that The Rubber Club of America, Inc., should pass a formal vote of thanks to Mr. George B. Hodgman, its president, and to those who had co-operated with him on the Embargo Committee in the work of securing a modification of the embargo by the British Government so that supplies of plantation rubber might come forward. He complimented Mr. Hodgman and the members of the Embargo Committee on the efficient and diplomatic manner in which the situation had been dealt with, and moved that a formal vote of thanks be tendered to them. Mr. Samuel Wright seconded this motion, and it was so voted.

MEETING OF RUBBER CLUB DIRECTORS.

The meeting of the directors of The Rubber Club of America, Inc., was held April 21. These were present: Francis H. Appleton, William E. Bruyn, George B. Hodgman, Frederic C. Hood, Frederick H. Jones, William J. Kelly, Henry C. Pearson, Homer E. Sawyer, Henry Spadone and H. S. Vorhis, secretary. The following officers were elected, to serve until the next annual meeting, to be held in January, 1916: President, George B. Hodgman; first vice-president, H. S. Firestone; second vice-president, Van H. Cartmell; secretary and treasurer, H. S. Vorhis.

The committees elected for the current year are given below:

EXECUTIVE.—George B. Hodgman (chairman), Frederic C. Hood, Henry Spadone, William E. Bruyn, H. S. Firestone, Van H. Cartmell.

NOMINATING.—Homer E. Sawyer (chairman), B. G. Work, Charles T. Wilson, Russell Parker, Henry C. Pearson.

LEGISLATIVE.—Frederic C. Hood (chairman), H. Stuart Hotchkiss, Harry T. Dunn.

AUDITING.—Edward E. Huber, William G. Grieb.

BANQUET.—W. E. Barker (chairman), Theodore W. Bassett, S. Theodore Hodgman.

OUTING.—Philip Endicott Young (chairman), R. L. Rice, F. H. Appleton, Jr.

Mr. Henry C. Pearson was delegated to draw up a proper testimonial in appreciation of the services of Mr. J. Frank Dunbar, who has acted as club treasurer for the period from 1909 to 1915.

This testimonial was prepared, presented and adopted and the following minute made on the records of the association:

"TESTIMONIAL.

"The following preamble and resolutions were adopted by the Board of Directors of The Rubber Club of America, Inc., at a meeting held at the Union League Club, New York, on April 21, 1915:

"Whereas, J. Frank Dunbar, for six years treasurer of the Rubber Club of America, has relinquished his position on account of the dissolution of the Massachusetts corporation, we, the Board of Directors of The Rubber Club of America, Inc., have,

"Resolved: That his long and faithful service merits the fullest appreciation of every member of our organization. The duties of his office, often onerous, always exacting, given without compensation of any sort, were performed promptly, cheerfully and adequately.

"Resolved, That we, voicing the unanimous wish of the Association, tender to him our sincere thanks for his years of constant, conscientious service.

"Attest: HARRY S. VORHIS,
"Secretary."

NEW MEMBERS.

Six new members were elected to the firm membership of the club. The list of these new companies and the names of those who will represent them in the firm membership of the club are given below:

Aldens' Successors, Limited, New York—F. W. Dunbar, attorney in fact.

Detroit Insulated Wire Co., Detroit, Michigan—Joseph H. Hunter, president.

Marathon Tire & Rubber Co., The, Cuyahoga Falls, Ohio—William F. Ridge, president and general manager.

Midgley Tire & Rubber Co., The, Lancaster, Ohio—Thomas Midgley, general manager and vice-president.

Northern Electric Co., Limited, Montreal, Quebec (Canada)—H. D. Brown, general purchasing agent.

Subers Fabric & Rubber Co., The, Cleveland, Ohio—L. A. Subers, president and general manager.

Jesse E. LaDow, secretary of the Mansfield Tire & Rubber Co., Mansfield, Ohio, was designated as firm representative of that company, instead of G. W. Henne.

Two new associate members were also elected, as follows: William A. DeLong, New York, and Bertram T. Martin, of Everlastik, Inc., Boston.

RUBBER GUARANTEES BEING CAREFULLY OBSERVED.

The conditions imposed on the rubber trade by the British war department have been carefully complied with. The few violations have been of a minor sort that were wholly due to the manufacturer's failure to grasp the meaning of the shipping guarantee. In a few instances goods have been shipped to neutral countries in Europe without going to England, but in all cases it has been found on investigation that the violation was committed through a misunderstanding of the stipulated agreement and not with deliberate attempt to evade the intent of the guarantee.

It is remarkable, considering the large amount of rubber that has been cleared by the British Consul General, that more unintentional violations have not occurred. As a matter of fact there has been only one instance when it was necessary for the consul to refuse to accept guarantees, on account of a violation of the agreement.

Applications for license to export manufactured goods from London to neutral European countries must be made direct to the War Trade Department, No. 4 Central buildings, Westminster, London. In case a manufacturer desires to accept the services of a London agent, the latter should have power of attorney from the manufacturer in order to transact the necessary business.

The war department now demands an affidavit from consignees of manufactured goods shipped to neutral European countries that they will not ship goods to the enemies of Great Britain.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

TRADE lags in many lines of rubber manufacture. The tire men are not working up to capacity, some reported as running nearer 50 than 70 per cent. This is in part explained by the large and increasing number of concerns which have gone into this business. Mechanicals are being bought only for immediate needs, and these needs are not large. Drug sundries are going well. Clothing men are unusually busy, though the trade in low-priced lines is considerably cut up. The footwear manufacturers have good orders on hand, much larger than a year ago at this time, due to two causes—lighter stocks carried over than last year, and the inducement of an extra 5 per cent. discount for early orders. The rubber shoe factories in this section are making tennis or other cloth upper specialties in footwear, while those making other lines in addition, such as drug sundries, hose, etc., are more than seasonably busy.

The demand for crude rubber is but moderate, but stocks are small, and some difficulty is experienced in securing shipments of stock already bought or ordered on the other side. Consumers who formerly carried a six months' stock continuously, are now buying only in small lots, and few manufacturers are believed to carry more than one-third their former normal supply.

* * *

Benjamin F. Elson, for many years connected with the Boston Belting Co., is still incapacitated for business from the effects of the paralytic shock he experienced last August. His many friends in the trade will regret to learn that he is not yet able to walk far without assistance. Mr. Elson entered the employ of the Boston Belting Co. soon after leaving school, severing his connection with the company to enter business on his own account, but later returning and advancing to the position of assistant manager. He is at his home in Brookline.

* * *

Most people in the United States have heard that Brookline, a suburb of Boston, is the richest town in the country. The wealthy Brooklinite hates to be disturbed in the early hours of the morning. The worst sleep-disturbers have been the milkmen, whose clattering wheels and rattling bottles prevented the somnolent citizen from enjoying his early morning repose. Thanks to rubber, however, today it is different. The agent for the inspection of milk in that town, going outside the narrow functions of inspecting the lacteal fluid, has inspected the entire outfits of the milkmen, and through his influence the wagons are now equipped with rubber-tired wheels, and the wire bottle carriers have been provided with rubber tube buffers.

* * *

C. J. Bailey, whose many novelties in rubber have long been well known in the trade, and whose rubber heels have made him famous, is now making rubber soles on the Bailey principle that has for so long made the "Wont-Slip" heels so popular, namely, the group of rubber studs which give resiliency and prevent slipping. The soles are made of leather fiber and rubber, and in the tread is an oval space containing five rows of rubber studs and a concentric flat ring. Mr. Bailey makes claims of superiority in the matter of non-slipping, while these soles and heels will not mutilate the grass on tennis courts or golf links; nor will they scratch yacht decks.

In Mr. Bailey's office hang two pictures which are of more than ordinary interest, when their story is known. One of these shows a very crude and rather dilapidated log cabin, the other a modern suburban residence up to date in every detail. The first is the birthplace of Mr. Bailey, and his residence until he reached the age of 21. It was built by his father, a pioneer in a middle western State. The other picture is that of Mr. Bailey's residence in Newton, one of Boston's best suburbs, and these two pictures tell in a graphic way the story of a successful life.

* * *

M. Norton & Co., dealers in rubber scrap, met with a serious loss on April 27, when their big rubber storehouse in Medford was entirely destroyed, together with a large amount of stock. The structure was a two-story building about 100 x 50 feet, and surrounded on three sides by a high board fence. Marsh grass in the vicinity caught fire, burned through the fence and attacked the storehouse, which was almost instantly ablaze. It was a spectacular fire, dense smoke spreading so far that thousands in surrounding towns were attracted. It was with great difficulty that the metal and machine shop was saved. The loss was well above $50,000 on building and contents.

* * *

Last month Colonel Frank L. Locke was re-elected president of the Boston Young Men's Christian Union at the sixty-fourth annual meeting of the board of directors. Mr. Locke was formerly well known in the rubber trade, having been for 12 years with the Boston Rubber Shoe Co., resigning the position of superintendent of the factories in June, 1907, to take up this institutional work as president of the Union. During the 8 years he has had charge of the workings of this splendid institution, its scope has been broadened, until today it is living up to its slogan, "Headquarters of Opportunity." The Union is not a charity. Its object is to help young men to help themselves by helping each other. It is a place where young men may meet, compare experiences, secure counsel, form classes to broaden their knowledge and enlarge their efficiency. It is a place where the young men can learn the duties and responsibilities as well as the privileges of citizenship. There is an employment bureau, while its social service is most comprehensive, including many outside beneficences. All this means an immense amount of work and requires a peculiar fitness which Colonel Locke possesses in a marked measure.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THERE has been a decided and general improvement in the volume of business of the concerns identified with the rubber industry in this state since the first of the year, which has been especially noticeable during the past month or six weeks; and more large orders are reported to have been received during the last week. While not authoritatively acknowledged, it is generally believed that this state is furnishing a considerable amount of goods that are being used by the Allies in Europe, including surgical appliances, rubber boots and solid tires for the war trucks. All of these goods are in great demand and the several Rhode Island factories are working overtime, as a rule. There is reported to be a shortage of competent rubber workers, which is beginning to be seriously felt in the different plants. One large plant, it is stated, would immediately go on a double shift if the proper grade of workers could be secured in necessary numbers.

* * *

The factory of the Consumers' Rubber Co., on Wood street, Bristol, formerly known as the Byfield Rubber Co., and which has been under the management of Terence McCarthy for several years, is enjoying a period of prosperity, with a large force of employes, a full-time schedule and large orders on hand. The concern is to be known hereafter as the Narragansett Rubber Co., Mr. McCarthy having succeeded in securing the plant from the receiver of the Consumers' Rubber Co. Papers relative to the change of name and control were filed with the city clerk at Bristol about the middle of the past month.

A charter for the Narragansett Rubber Co. has been secured from the Secretary of State of Rhode Island, and all the formalities connected with the change have been completed. Mr. Mc-

Carthy will continue in management of the factory, which is producing arctics and tennis shoes, with orders on hand that it will be impossible to fill in several weeks. The orders are from various points of the United States and, according to Mr. McCarthy, there is a prospect of steady employment for the 250 employes for a long time to come.

* * *

The construction of the new brick addition to the storage buildings at the plant of the National India Rubber Co. at Bristol was finished about the middle of April and the transfer of goods from the old storage house on Wilson's lane to the new storehouse on the east side of the factory was begun April 15 and occupied about a fortnight.

The shipments from the factory of the National company during the past month have been of such proportions that from 12 to 14 box cars were on the siding at the Bristol station daily The shipments were principally of tennis shoes. The company's heel-making department has been overhauled and extensive repairing done to the machinery during the past month.

* * *

Charles J. Davol, president of the Davol Rubber Co., who has been occupying his country estate, "Wild Acres," in the northern section of Wickford, Rhode Island, has launched his new seagoing power cruiser, "Paragon," in which he will make long cruises during the coming season. The yacht is 120 feet long and has an extreme beam of 14 feet 6 inches, and draws 5 feet of water. She is of the torpedo destroyer type, built entirely of steel, and is expected to make 20 knots an hour. Her gasolene capacity gives her a cruising radius of 1,000 miles, and the motors develop 600-horsepower in two units. The yacht was christened at the launching by Mrs. Davol, who will accompany Mr. Davol on his cruises this summer.

* * *

The International Rubber Co., of Barrington, has been made a joint defendant with two other corporations of that town in a suit filed a few days ago in the Superior Court for Providence county by John W. Dodge, of Barrington, in which it is alleged that one or more of the defendant concerns allowed acids, coloring matter, sewage and refuse to run into Allen's Creek in Barrington and damage oysters planted upon leased ground. Mr. Dodge says that he is in doubt as to which of the defendant concerns is liable, and he therefore joins them under the statute in order that the liability may be determined. While the suit is filed for $50,000 the complainant claims double damages under the statute, making the full amount of his claim $100,000.

* * *

John Anthony, of Attleboro; Frank Healey, and George T. Marsh, of this city, have incorporated at the office of the Secretary of State of Rhode Island under the name of the Anthony Rubber Manufacturing Co., with a capitalization of $100,000. The corporation, under the terms of its charter, is authorized to buy, sell and otherwise deal in crude rubber and rubber goods, and to manufacture rubber tires.

* * *

Several of the army corps now at the front in France and Belgium are wearing rubber boots which were made in Rhode Island. It has been known for some time that the mills of the United States Rubber Co., situated at Woonsocket, were very busy, but only recently has it come to light that these rubber boots were for the soldiers. Included in the order received by the Woonsocket mills, according to reports, was an admonition to keep the order secret and to have the goods shipped out quietly. The boots, which were ordered through an agent of the Allies, have been in the possession of the men in the trenches for some time. The Alice mill at Woonsocket and the Millville mill at Millville both have an unusually large number of orders on hand, and the rush is expected to continue indefinitely.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

IF the demand for rubber manufacturing machinery can be taken as an indication, there is every reason to look for a most prosperous year in the trade.

The John E. Thropp's Sons Co., which has a large plant devoted now almost exclusively to the making of rubber machinery, is working nights to keep up with orders and has plans drawn for an addition, which will give it several times its present capacity. One new building 300 x 60 feet is now being rushed to completion. When this is finished the present shop will be torn down and rebuilt on a more extensive scale. The new business necessitating the increased capacity is of normal character and not the result of any passing stimulus. This concern's reputation in machinery manufacture is steadily broadening. A large order for a tire-making factory in France, placed before the outbreak of the war and held up for some time on account of it, is now being turned out. Another order now under way at the shop is for the Mecca Tire Co., which will shortly start the manufacture of tires in this city. This last-named order will be completed in about six weeks.

* * *

The Royal Rubber Co., which makes a line of druggists' sundries, is passing through a troubled period. Samuel Treeger and Herman Minzesheimer are the principals in the concern. Minzesheimer has brought suit against Treeger, while Treeger has applied for a receiver for the company. Justice Newburger has appointed Jacob Klein to act as receiver. Edward Aswitz, factory manager for the Royal Rubber Co., says that the plant had orders sufficient to keep it operating to capacity for several months to come. He said the concern had plans drawn for the erection of a new plant next year.

* * *

The Essex Rubber Co. is establishing a chain of "Blue List Cobbler Shops" which it plans to extend eventually to every state in the union for the handling of its line of "Shedwet" soles. A representative cobbler is to be selected in each locality to handle the line, and a conspicuous window poster will officially designate each shop. The Essex Mutual Benefit Association has been formed under the supervision of the heads of the company to take care of employes of the concern in times of sickness or disability from accidents.

* * *

The opening of the baseball season has brought about the formation of clubs at the Essex, Thermoid and Empire plants. A rubber club league with nines from the different factories in the trade may be the result.

* * *

William R. Thropp & Sons, makers of rubber machinery, have taken on the manufacture of a collapsible tire core patented by Fred R. Parker, of this city. Several tire manufacturing companies have already adopted the core, which is said to cost less to make than the old style, and to be lighter. The principal feature of the new core is the doing away with all rings and bolts. To open the core it is only necessary to drive out four steel taper pins, releasing the steel strips which allow the core to separate into four sections.

* * *

Fire of unknown origin wiped out the plant of the American Rubber Manufacturing Co. here today. The flames spread to adjoining structures and did a total damage of $42,000.

The heaviest loser is the American Rubber Manufacturing Co., which recently installed much valuable machinery. A watchman employed by the company discovered the flames before they had made much headway and he ran quickly to the office to give the alarm. The 'phone is said to have been out of order and this caused a delay.

Antonio di Piano, head of the rubber concern, said business would be resumed as soon as possible in a new building. The company was rushed with orders and the fire could not have come at a worse time. The concern makes rubber soles, mats and kindred articles.

* * *

The Delion Tire & Rubber Co., though just starting business, has found its machinery inadequate to care for incoming orders. A new tire machine and a new vulcanizer are to be installed at once, doubling the present equipment. O. S. Hatton, who was with the Thermoid people for 5 years, has become office manager for the Delion company.

Arthur Colvin, formerly with the Globe company, has taken a position as factory superintendent with the Delion company. He succeeds A. A. Peterson, who has taken a position at Akron, Ohio.

The prize of $25, offered for the best slogan submitted for advertising the Delion tire, has been awarded to a Trenton girl, who suggested "Delion tires for particular buyers."

Samuel J. McDonald and M. William Murphy, under the firm name of McDonald & Murphy, have opened a wareroom at 112 North Warren street for the sale of Delion tires and tubes. Mr. McDonald was for 9 years a road salesman for the Acme Rubber Co.

* * *

William J. Swick has opened a wareroom at 203 East State street, where he will handle Acme, Century, Congress and Pullman tires.

* * *

The Zee Zee Tire & Rubber Co. has bought a factory building at Yardville, just below Trenton, to make rubber specialties for the automobile trade.

* * *

Elbert Hubbard, the sage of East Aurora, made an inspection of the plants of the Empire Rubber & Tire Co. and the John A. Roebling's Sons Co. this week. He was in Trenton as the guest of the Chamber of Commerce. He promised to write his impressions in the near future in an article entitled "A Little Visit to Trenton." C. H. Oakley, of the Essex Rubber Co., was one of the Chamber of Commerce commiteee named to pilot Fra Elbertus about the city.

* * *

The Globe Rubber Tire Manufacturing Co., has increased its force within the past five weeks from 160 to 350 men. The concern is now running 22 hours a day. Owing to pressure of business it has become necessary to provide more room at the plant. Work will be commenced shortly on a new building which will accommodate the offices, machine shop and shipping room.

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

STOCKS of rubber on hand in the rubber storehouses of this city are said to be worth at the present time close to $10,000,000. Unusual buying has been going on as a result of war uncertainties, and never before has so much raw material been on hand at one time.

Some of the larger Akron factories are small cities within themselves, with populations of from 5,000 to 12,000, provided with all the appurtenances of the modern city—libraries, hospitals, police and fire departments, restaurants, dance halls, etc. All the plants are busy, running full time. The output is larger than ever before and the companies are advertising in outside papers for additional help. Good strong men of reliable character are in demand.

* * *

Charles DeWoody, former Akron man, now one of the western representatives of the federal department of justice, has reported to his department, after an investigation of the Akron rubber industry, that there is not the slightest foundation for the report that a "trust" exists here. His reports show, on the contrary, that the competition is unusually spirited.

* * *

As the result of a bill which has passed the Ohio General Assembly, The B. F. Goodrich Co. has been enabled to purchase land along the Ohio canal adjoining its factory buildings. A new addition to the plant, costing approximately $500,000 is to be erected this year—not, it is stated, on this property.

According to a decision handed down recently by Federal Judge John H. Clark, of Cleveland, the patent for reclaiming crude rubber by what is known as the alkali process, held by A. H. Marks, of the Goodrich company, is invalid. The decision was given in a suit brought against the Portage Rubber Co., of Barberton, Ohio, by the Philadelphia Rubber Works Co., which operates a reclaiming plant here. The claim was made that the Portage company infringed on the Marks patent. Marks was granted the patent October 17, 1899. The case will be carried to a higher court.

A. H. Marks, vice-president of the Goodrich company, has denied reports current in Boston and New York that dividends on common stock of the company are to be resumed.

This company has ready for distribution three booklets on California for automobile tourists who expect to visit that country during the coming summer. These show with detailed maps and road logs all the best highways as well as the most interesting scenery along the route.

* * *

An injunction to restrain the Swinehart Tire & Rubber Co., of Akron, from selling a type of non-skid tire on which the complaining company claims a patent, has been filed in the federal court at Cleveland by the Keaton Tire & Rubber Co., of San Francisco. Damages are also asked. The petition claims that the tire was invented in 1910 by Robert Keaton and that the Swinehart company has sold tires infringing on Keaton's patent for a profit of at least $50,000.

Work on a $50,000 three-story factory and office building has been started by the Swinehart company.

* * *

The Firestone Tire & Rubber Co. has added a new wing 200 feet long and four stories high to its office building.

Service men of the Firestone company closed a three-day convention in Akron Saturday, April 17.

"The best safety device known is a careful man," is a sign that greets workers everywhere in the Firestone factory. Robert E. Lee is director of safety and welfare for the company.

Members of the Firestone Tennis Club, recently organized, are M. E. Ake, assistant superintendent; L. G. Fairbanks, assistant advertising manager; E. M. Slater, of the engineering department; F. B. Dodge, of the branch efficiency department; A. G. Roberts, of the purchasing department; H. G. Polhamus, of the credit department, and W. G. Manley, of the branch efficiency department. Courts are being built at Portage Path and Crosby street.

* * *

One of the finest herds of cattle owned in this part of the country is that on the estate of A. H. Marks, of The B. F. Goodrich Co. Mr. Marks spends much of his spare time on his Elmcourt farm.

Messrs. W. H. Allen, of the Goodrich; Y. E. Hale and E. R. Hall, of the Goodyear; C. C. Carlton, of the Firestone, and J. H. Wagenhorst, of the United Rim companies, have been made members of the S. A. E. Standards Committee.

T. W. Blackwell, who has been associated with the Goodrich Indianapolis branch for more than 12 years, has resigned to organize a company at Wichita, Kansas, for the manufacture of tires.

I. R. Bailey, a former Diamond employe, is now manager of a

mechanical rubber goods department for the Goodyear Tire & Rubber Co.

Cliff Mathewson, associated with the Pacific Coast work of the Diamond Rubber Co. before its consolidation with the Goodrich, is now associated with the sales force of The Norwalk Tire & Rubber Co., promoted by W. B. Miller, former Diamond official.

War orders for American auto trucks has had the effect of an impetus to the manufacture of solid auto tires by Akron companies.

THE RUBBER TRADE IN CHICAGO.

By Our Regular Correspondent.

GENERAL conditions in the rubber trade here are much more favorable than they were a few months ago, according to the leading members of the industry. In the mechanical rubber line the demand for belting and packing has picked up considerably, due to the spring repairs which are being carried out in the various mills and factories of the West and also to a recent boom in western mining operations.

Practically all of the local tire firms report an excellent business, due to the early spring, bringing out hundreds of cars which ordinarily do not appear until several weeks later. The highways in the vicinity of Chicago, which are usually almost impassable at this time of the year, are already in good condition, motorists are enjoying country trips and, incidentally, consuming tires.

* * *

H. Muehlstein & Co., dealers in scrap rubber, with offices in New York, Akron and Chicago, have removed their headquarters in the last-named city from 407 South Dearborn street to 114 West Van Buren street.

* * *

The Mills Novelty Co., which manufactures coin-operated automatic instruments, announced last week that it would enter the player piano field and would add a department at once for the manufacture of these instruments. The entire piano, including the action, will probably be built at the factory. The company will therefore be in the market for large quantities of rubber tubing in addition to the amount heretofore used in the manufacture of automatic instruments.

* * *

Rubber men of the city expect to be called in the examination which is being made by a sub-committee of the Illinois State Legislature with a view to gathering evidence to be presented in connection with the woman's eight-hour bill, which comes up for passage in the near future. The plan of the committee is to get the views of every employer of female labor in the city. The employers who have testified thus far have taken the stand that the present is a poor time to enact laws which means extra expense on the part of the manufacturer. The Illinois Manufacturers' Association has gone on record as opposed to the bill, and recently sent a large delegation to Springfield for the purpose of opposing the measure. Attacks on business at this time, it was pointed out to the legislators, might result disastrously for employers and employes as well, for any additional expense might make necessary the closing of many plants.

* * *

Marcus S. Hill, general foreign ambassador of the Illinois Manufacturers' Association, was consulting with local rubber men last week with a view to getting some prominent rubber manufacturing company of this city to join in the plan on foot to open general warerooms for the display of American goods in the leading foreign cities. Mr. Hill will leave shortly for London, where one of the branches is to be established. Petrograd, Melbourne, Sydney and Buenos Aires are other centers mentioned.

THE RUBBER TRADE ON THE PACIFIC COAST.

By Our Regular Correspondent.

THE rubber trade, or at least the demand for tires, which is the chief item in the rubber trade of this section, will probably experience considerable improvement over present very favorable conditions as a result of the work now being done on State highways. This work is costing the State about $18,000,000, and with its completion the farmers throughout the section will undoubtedly take advantage of the quick, cheap and convenient means afforded by the automobile truck for the transportation of their product to buying centers; which means interesting possibilities to distributors of truck tires.

Transcontinental travel is also expected to be unusually heavy this year, doubtless entailing the renewal here of many worn tires and other equipment. The American Automobile Association, up to April 1, had distributed touring information, on request, to 1,000 persons interested in making a trip to the Pacific coast—a number far in excess of past similar requests.

* * *

Western investors in the La Zacualpa Rubber Plantation Co., the La Zacualpa Plantation Co. and the Hidalgo Plantation & Commercial Co. have lately received notice of the formation of a new company, under the laws of Nevada and known as La Zacualpa-Hidalgo Rubber Co., which is designed eventually to take over the rubber acreage of these three plantations in Mexico. For present acreage certificates, holders are to receive shares of stock in the new corporation. The notice also contains an announcement of the transfer of administration of the plantation in Mexico from O. Harrison, who promoted the original companies, to Graham M. Kerr, representative of the re-organized concern, and also the statement that title to the properties will be transferred to the new corporation as soon as political conditions in Mexico are such that it can be legally done. The officers of the new company are: E. R. Stackable, president; E. J. Boyes, vice-president; John A. Bishop, secretary and treasurer; and the board of directors includes these three, together with Robert Davies, F. E. Litchfield and L. A. Ward.

* * *

A new tire is being manufactured in San Francisco, for sale under a 10,000-mile guarantee against defects in material and workmanship. This is made by the Wearproof Tire Products Co., which agrees to repair free of charge any tire that fails to give this amount of service.

* * *

H. E. Hollenbeck, representative of the Michelin Tire Co. on this coast, has made arrangements with the Turner-Snyder Rubber Co., of Tacoma, Washington, to handle in that section the products of the Michelin factory at Milltown, New Jersey.

* * *

The motorcycle race of April 4 at the Venice track, California, was both interesting and important in racing circles, the record made, of 69 miles an hour for a distance of 301 miles, being 8 miles an hour faster than the automobile record over the same track. The winning motorcycle, as also those taking third, fourth and fifth places, was equipped with Firestone tires.

* * *

The Pacific coast branch and district managers of the Goodyear Tire & Rubber Co. recently attended a conference in Seattle, presided over by M. E. Morris, chief of the San Francisco branch. Others who took part in the conference were: C. B. Reynolds, of Tacoma; H. Jurgewitz, of Spokane; C. H. Williams, of Portland; C. C. Miller, of Seattle, and W. J. McAllister, who has charge of the truck tire business of the company on the coast.

* * *

The Macdonald Sales Co. has opened a store and service station at 506-8 Pico street, Los Angeles, for the sale of Woodworth treads.

VULCANIZING RUBBER SHOES.

By a Veteran Superintendent.

THE article on page 227 in the January number, taken from "Gummi Zeitung," is interesting, and I would like to answer each number.

1. Porosity of Soles.—On taking a position as superintendent of a certain factory I first heard the word porosity. In those days things were porous or full of holes. The soling in this factory was so full of holes it could have been used to make tallow candles. I found them running soling with a tubing machine, having given up the idea that any good could come from a soling calender. After altering the soling calender, and by a gentle scientific blending of certain compounds, soling came into its own, and day after day—sometimes weeks—passed and no sign of blisters. If any factories have blisters these days they should be ashamed, and mend their ways.

2. Blistering of the Uppers.—Uppers do not blister. My wife and I have just bought overshoes of different makes, and although they are bought for firsts both have a slight rash. We all know if we are good we will be happy. Also, if dampness between lining and upper from heel to toe is eliminated, no blister will appear. It is the habit in some factories to put shoes in heaters for a short time before putting on the soling and uppers. This puts the quietus on this class of trouble.

3. Sub-Vulcanization, or Blooming.—It often happens that a few shoes in a heat now and then bloom. The wind may be blowing from the North or lasts used that have been idle for a time—any number of things cause blooming. These shoes are put back in the heater for a short time and the bloom eradicated. The best heater for vulcanizing is not the one that costs the most. I always found a leaky better than a tight one. The subject of heaters is interesting, and to one who has traveled in many countries and seen the ignorance along this line it causes wonder. At one place they had trouble with the uppers. I was asked to help. When the word went around that I had put shellac in the compounds a meeting of the foremen was held and it was voted that I was trying to ruin the business, etc. The upper came out all right, however.

4. Super-Vulcanization or Overheating.—In running a battery of 8 heaters, each had a heat of its own. The reason was that some were brick, while the lining of others was sheet iron or sheet tin. The brick had been coated with tar from time to time to kill the porosity. It was the rule to take out a stick of shoes from each heater and test them by the rule of thumb.

In all my experience of over 40 years I cannot remember any instance where shoes, clothing, carriage cloth or any dry heated stocks have been lost by overcuring, except once, when 5,000 yards of carriage cloth went rotten—this because the dye had not been properly washed.

A heater man has got to be very, very careless to overcure stock in a dry heater. Once I thought there was something wrong—not that the goods showed it but by intuition or subconsciousness. Going to the top of the heater I found the dampers had rusted out. These heaters had run for no one knew how long without dampers, but it did not hurt the goods.

Some run heats 5 hours, others 11, but they all run them the same as far as the curing goes. The other is only the drying process. You can make them longer or shorter according to your whim.

5. Metallic Appearance of the Varnish.—The best cover over the inside of heater is the wood itself. If I had the value of all the old junk in the way of iron plates that I have taken out of heaters, that had been put in to divert the heat, I don't know what I would do. The heat on tin or iron affects the appearance of shoes. If they have a shiny look, send for the plumber. Sometimes it is caused by the varnish being a little slack—that is not brought up to the thousand spider webs. I like the slight blue tinge rather than dead black. Perhaps that is why they called the factory Goodyear's Metallic Rubber Shoe Co.

We hear now and then of ways of pumping air in with pressure to make blisters behave themselves. When the time comes that blisters are kept under by this process it can be adapted to the tire trade, instead of making shoes as per tires.

Then the way of exhausting the air. It might come out this way. A factory was annoyed and had the black mill incased in a small room; this room was air tight. From the top of room to outside of building a flue about 2 feet in diameter, at the end an exhaust fan. This would have been a grand success only it sucked about all the compound out and the operator had a narrow escape.

To sum up the whole matter, it is absurd to think, in this enlightened age, with all the different organizations for the benefit of mankind—and a few women—that the average of job shoes can ever be over ¼ of 1 per cent.

FOLDING BATH TUBS FOR THE ARMY.

The automobile bath wagon is something new both in automobile construction and in military use, but such a car has recently been built, to the order of the St. John Ambulance Association, of London, and sent to the front. This automobile is supplied with 12 folding bath tubs, made of waterproof canvas mounted on folding iron frames. When in use the tubs stand on the ground, 6 on each side of the car, in tents formed by drawing out a canvas partition that has been rolled up close against the side of the car, and which is supported by tent poles. Thus two compartments are formed, each about 8 x 10 feet in size, with the car in the center. A canvas floor covering is provided for each tent and hot and cold water, at the rate of 2 gallons a minute, are supplied from tanks through rubber hose pipes, while reasonable quantities of sterilized drinking water are also provided.

A CHICLE SEIZURE CAUSES TROUBLE.

A great deal of excitement was caused recently in the northern part of British Honduras, caused by the seizure of a quantity of chicle by the British bank in Belize, when it was being transported in Mexican boats from one Mexican port to another.

A short time ago, a Mexican company was formed for the purpose of bleeding chicle in the southern part of Mexico. To get the necessary capital, it borrowed a considerable sum of money from the branch of the Royal Bank of Canada, situated in Belize. The chicle was secured and stored in warehouses near the border, between Mexico and British Honduras, as security, but the Mexican commandante levied toll on the gum, and securing no payment seized it and put it aboard two bungays to send to another Mexican port; but, owing to the draft of the boats, they could not go through the usual channel and had to sail south through British waters, when they were seized by the bank officials. They were later released by order of the court, but in the meantime reports were received at Corosal, a British town just across the border from Mexico, that a band of Mexicans was forming to raid the town by way of retaliation. The citizens of fighting age were called out and arms provided and guards set at the different roads leading to the town, but no report of such a raid has as yet been received.

By a decree of November 9, 1914, the duty on chicle exported from Guatemala was increased from 2 cents to 7 cents (American gold) per libra (1.01 pounds).

The William Cramp & Son Ship & Engine Co., of Philadelphia, has contracted to construct for W. R. Grace & Co., of New York, a steamship to be built on lines similar to those of the "Santa Cruz," "Santa Cecilia" and "Santa Catalina," owned by the Grace company. This new ship will be about 400 feet long and of about 4,000 tons net. It is being built for the Panama Canal route between New York and San Francisco.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE new bill passed by Parliament in March giving the government power to take over and control works manufacturing munitions of war is an innovation of considerable importance to those concerned. The main objects are to expedite production and to deal drastically with strikes among workmen. One of the means taken to obviate strikes is to limit the profits of firms on war-office work to 10 per cent. above their ordinary profits, the men having got the idea that, though they themselves are earning increased wages, the masters are rapidly piling up fortunes; which is by no means universally the case. So far I do not hear of any rubber works being affected by the bill, though manufacturers acknowledge that its provisions apply equally to such goods as motor tires as to guns, explosives and motor wagons. At the time of writing the superman—to use a current term—who is to act as general manager under the bill has not yet been appointed. What is known in America as a "hustler" is being looked for, and it seems that 2,000 or 3,000 have sent in applications for the position.

The general agitation for a rise in wages to meet the 25 per cent. increase in the cost of provisions has extended to the rubber trade, and what is known as a war bonus has been granted in most of the rubber factories in the Glasgow and Manchester districts. Negotiations with the manufacturers have been carried on by Mr. H. H. Duke, the organizer of the Amalgamated Society of India Rubber Workers, whose office is in Manchester, and it is pleasant to be able to record with what amicability these have been conducted compared with certain proceedings in the past. Not that such negotiations have been necessary in all cases, because I know of instances where the war bonus was granted immediately the rise in the cost of living took place, or at any rate was generally recognized.

From all accounts the rubber and tin export committee is carrying on its functions as far as rubber is concerned to the satisfaction of those concerned with the embargo. With regard to trade, now that the government seems to have placed all its important orders, there is a tendency to expect slack times when these are worked off. The rush for solvent naphtha led to a rise of about 3*d*. per gallon, to 1*s*. 5*d*., a price which cannot be considered excessive. There is no reason, however, to expect any shortage in the article, although a larger amount of pure xylol is now being produced in connection with the color industry.

The main difficulty with regard to business other than government business at the moment is in connection with the railway companies, great delays being experienced by manufacturers both in getting their supplies and in forwarding finished goods. Very little detail has been allowed to leak out regarding the movement of troops, but this has been on a large scale, with the result that general goods traffic has been greatly disorganized.

With regard to rubber chemicals, the one which seems to be most affected at the present time is golden sulphide of antimony. One cause of this is the shutting off of the German and French supplies, and another is the great rise in the price of the metal, to nearly £90 per ton, Russian demand having a good deal to do with this. Though there are a number of sellers of golden sulphide in England, I believe I am right in saying that there are only two actual manufacturers, and the state of affairs in America seems to be much the same. The British makers have been inundated with orders, which they have been quite unable to fill at the moment. They are enlarging their plants, and, all things considered, it cannot be contended that the rise of 4*d*. per pound is at all excessive. Golden sulphide is on the list of absolute contraband, as it is one of the materials used in fuses.

PLANTATION RUBBER.

An interesting and important statement was made at the London Rubber Exhibition conference by Mr. W. A. Williams, of the North British Rubber Co., Limited, to the effect that he had not found smoked plantation rubber to be superior in any way to unsmoked. As much undoubtedly depends upon the particular brands of rubber he experimented with, it is quite possible that other manufacturers may have come to the opposite conclusion, though it is pretty generally conceded that the various methods adopted for smoking plantation rubber after coagulation are only a poor imitation of the well known method carried out on the Amazon with fine rubber. It would certainly be of general interest to know how far Mr. Williams' statement receives general support.

While on the topic of the quality of rubber, perhaps I may mention one of the results I have obtained from some atmospheric tests of raw rubber. Various samples of raw rubber were hung up on the garden wall for 17 months, experiencing frost, sun, rain, etc. One result I have obtained has, I must confess, somewhat surprised me. The resin content of the hard fine Para sample increased from 2.5 per cent. to 15.5 per cent., while one sample of smoked plantation rubber showed only 5 per cent. resin against 4 per cent. originally, and another sample from a different source gave a very similar result. The origin of the plantation samples is unknown to me. I am not putting these results forward as a contribution to our scientific literature, as the experiment was not carried out with any special precautions, but as there is no reason to doubt their substantial accuracy, I think it is only fair that they should see the light. A manufacturer with whom I discussed the matter said that he would have expected the fine hard to give the better results, and expressed the opinion that this would be so if a compounded and vulcanized sheet of each had been exposed to the same conditions.

RUBBER AND HYGIENE.

In a recent bulletin from the United States Hygienic Laboratory (No. 96, 1914), special reference is made to the composition of the rubber in nursing nipples and teething rings, one of the conclusions arrived at being that rubber containing antimony is undesirable in articles for infants. What surprises me most about the analyses is the presence of clay, zinc oxide, magnesia and various compounds, and it would be interesting to know whether these goods are produced in America, or whether they are of Teutonic origin. In England it has always been customary to use pure vulcanized rubber for these goods, the main change which has taken place in the manufacture in the last 40 years being the substitution of the seamless teat made from rubber solution for the teat which was made from cut sheet and jointed by pressure on a mandrel. The use of silicates or metallic oxides was never thought of, nor was the black color due to any added material, being the natural result of the sulphur bath. Perhaps one ought to mention the production a few years ago of transparent teats by the Leyland & Birmingham Rubber Co., Limited, these being made from a special brand of Ceylon plantation rubber. These teats, as also many of the ordinary seamless variety, were vulcanized by the cold cure process.

OBITUARY.

In the person of Mr. W. A. Oddy, of Rochdale, there has recently died a man well known to the rubber trade in the Manchester district. Mr. Oddy, who was 71 years of age, though at one time connected with the textile industry, about 30 years ago went into the waste rubber business, in which he rapidly gained wealth. This was in the good old days when waste rubber, like cinders, was to be had more or less for the cost of carting, and when the close competition of today was non-existent. His firm is now known as Oddy & Whitworth. He was in close connection with the late Mr. Thomas Rowley, and had been for some time head of the firm of Grimshaw & Co., rubber chemical manufacturers, with which Mr. Rowley was connected. He was also a director of G. W. Laughton & Co., Limited, rubber manufacturers, Clayton, Manchester.

TOO MUCH ANALYSIS.

The letters which have recently appeared in THE INDIA RUBBER WORLD under this heading meet with general approval among our manufacturers, who, as a rule, hold the opinion that they understand how to fill the customers' requirements to the best advantage without the auxiliary aid of precise specifications. Further, they have a profound suspicion of the correctness of the figures obtained by the purchaser's chemist. This suspicion will be enhanced rather than allayed by what has recently appeared in THE INDIA RUBBER WORLD regarding discrepancies in analyses. These results, it is understood, were all the work of chemists specially versed in rubber analysis. In Great Britain, however, the rubber manufacturer knows that his products are in many cases tested by men who have only a cursory acquaintance with rubber analysis, and this has naturally led to a good deal of dissatisfaction.

I could give numerous instances, but will only mention one, where goods were rejected because they contained plaster of Paris, which the manufacturer knew he had not used. The explanation of the discrepancy was that the chemist had taken the mineral matter by direct ignition. This resulted in the formation of some sulphate of lime or plaster of Paris by the combination of the lime of the whiting with the free sulphur. Outside government contracts there is comparatively little rubber manufacturing in Great Britain to strict specification, certainly not as much as appears to be the case in America and Germany. A year or two ago reclaimers took to selling their products on analysis, a course which apparently was forced upon them. Of late, however, the practice has been dropped. Analysis strikes at the root of what the rubber manufacturer holds most dear—secrecy—and as long as he does not advertise his own figures he can always assert that those obtained by the purchaser are wrong if they are not flattering enough.

SPALDING VS. GAMAGE.

The case of Spalding vs. Gamage, which was mentioned in THE INDIA RUBBER WORLD for September, 1913, has been definitely disposed of before the House of Lords in London.

This interesting case may be briefly stated as follows: The London branch of the well-known American sporting goods firm, Spalding Brothers, discarded some 500 rubber footballs of a model known as the "Orb," selling them to a waste rubber dealer at something like 4*d*. each. The waste rubber dealer in turn sold these balls to the large London sporting goods firm of F. W. Gamage, Limited, at about 1*s*. 2*d*. a piece. In the meanwhile Spalding Brothers brought out a new football, which they advertised as the "New Improved Sewn Orb"—price 10*s*. 6*d*. At the same time the Gamages advertised the old "Orbs" which they had purchased from the waste rubber dealer, for sale at 2*s*. 10*d*., stating that the usual price of this ball was 10*s*. 6*d*., and giving a description of it which was substantially the same as that which Spalding Brothers gave to their "New Improved Sewn Orb." This occurred in 1910. An injunction was granted and the question of damages was being determined when the Court of Appeals reversed the judgment.

The decision of the House of Lords, which is the supreme court of appeal of the British Empire, restores the first order by allowing the appeal with costs. In passing judgment Lord Parker said that the advertisements of A. W. Gamage, Limited, were calculated to deceive.

BRITISH TIRE STANDARDS.

The Tire Committee of the British Society of Motor Manufacturers & Traders proposes to reduce its pneumatic tire rim standards to a total of 10, and its tire standards to the 11 different sizes here given. The proposed tire sizes are:

Millimeters.	Equivalent in inches.
700 x 80	27.5 x 3.14
700 x 85	27.5 x 3.34
710 x 90	27.9 x 3.54
760 x 90	29.9 x 3.54
810 x 90	31.9 x 3.54
815 x 105	32.1 x 4.13
820 x 120	32.3 x 4.72
880 x 120	34.6 x 4.72
895 x 135	35.2 x 5.31
835 x 135	36.8 x 5.31
915 x 175	36.0 x 6.88

These are practically the standards long recognized all over continental Europe and at present effective throughout the Old World. The assumption is that these figures represent the exact measurements of the tires and not, as is at present the case in Europe, fictitious measurements which vary from one make of tires to another. It is noticeable that no provision is made in these standards for those large tires so extensively used on heavy machines in Great Britain and Belgium. This announcement is of great importance to American manufacturers of both tires and automobiles, for no American made cars are turned out to conform with these standards.

RUBBER SHIPMENTS RATHER SLOW.

Much irritation is felt in the British rubber trade on account of the delay in the issue of export licenses. Tons of rubber goods are held up at ports of shipment owing, it is said, to congestion in handling applications for export licenses. Chambers of Commerce have taken the matter up with the government, whose explanation is that the export licensing department is a new organization and must be allowed time to get into smooth working order.

Birmingham is endeavoring to create some sort of an organization to bring to that city the great business formerly handled at the Leipzig Fair.

AN ENGLISH VIEW OF A DUTCH SITUATION.

A recent number of our English contemporary, the "India Rubber Journal," contains the following interesting paragraph:

"Since the Dutch Government has forbidden the export of tires, short motor trips into Germany have become quite popular. Many cars which cross the frontier with a set of new tires return with them utterly worn out, after a small mileage only; yet this does not deter the ardent motorist, for the trip is so enticing that another journey is undertaken almost immediately, with a fresh set of new tires. Where there's a wheel there's a way."

Burberrys, Limited, of Haymarket, London, who beside manufacturing weatherproof clothing for all occasions, including aviators' outfits and service equipment, also make tents of proofed material, have presented to the British Red Cross a motor soup-kitchen, built to approved specifications and completely fitted.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

BRITISH NEWS NOTES.

English rubber manufacturers are being put to considerable expense through the railways' refusal to accept empty cases. Both labor and wood are high and much money is being spent unnecessarily on packing. Many houses have resorted to forwarding their goods in strong parcels.

Tire manufacturers are busy with the opening of the new season. The great demand is for tires for light cars.

The mechanical trade is fairly good and the rubber heel trade has also improved since the war began. There is an unprecedented demand for bed sheetings, both with single and double face.

The British Insulated & Helsby Cables, Limited, of Helsby, Cheshire, has declared a final dividend, which brings the total for the year up to 15 per cent. Dividends for 1913 amounted to 13 per cent.

The International Tyre & Rubber Co., Limited, has recently been registered in London, with a capital of £5,000, and with offices at 1 Marsham street, Westminster, S. W. E. M. Reid and J. A. Howard are named as first directors.

The Belgian Colonial Office has been transferred, temporarily—until peaceful conditions are again established in Belgium—to India House, Kingsway, W. C., London, and publication of the "Bulletin Agricole du Congo Belge," which had been suspended, will very soon be resumed.

The Rubber and Tin Exports Committee, London, to which all applications must be made for licenses to export these products, on April 6 removed its offices from the Westminster Palace Hotel to 3 Queen Anne's Gate, Westminster, S. W.

Sir John French, of the British Army, explained the retreat of the French troops before Ypres, on April 22, by saying that

Courtesy of N. Y. Times.

ENGLISH SOLDIERS GUARDING AGAINST ASPHYXIATING SHELLS.

they were overcome by fumes, "the Germans making use of appliances for the production of asphyxiating gas." The photograph reproduced above shows the soldiers digging in the trenches protecting themselves from the effects of these gas-producing shells. A respirator is often worn, which is made of soft rubber that fits closely over the nose and mouth and is equipped with a filtering sponge. Most of the soldiers shown in the picture appear to have improvised a respirator by tying handkerchiefs over their faces, filled undoubtedly with a wet pad of cotton wool or some other porous material.

About 150 aeroplanes, valued at from $3,000 to $4,000 each, were received at Tacoma, Washington, early in April, for shipment to Vladivostok, Russia, by Japanese steamship, for use by the Russian army.

FRANCE'S COMMERCE IN RUBBER GOODS.

The following tables, according to a report under date March 11, by Consul General A. M. Thackara, stationed at Paris, show the commerce of France in crude rubber and manufactured rubber goods for 1913 and 1914:

	1913.		1914.	
	Quantity. Metric tons.	Value.	Quantity. Metric tons.	Value
Imports of crude rubber	17,441	$23,607,000	11,567	$15,717,000
Exports of crude rubber	16,687	14,579,000	6,489	8,817,000
Imports of manufactured rubber goods	3,326	8,566,000	2,043	5,287,000
Exports of manufactured rubber goods	6,930	19,356,000	6,068	17,151,000

The table below shows the distribution of this foreign commerce for the year 1914:

Imports from	Belgium.	Germany.	Great Britain.	Russia.	United States.
Crude rubber	$207,000	$455,000	$6,943,000	.....	$806,000
Manufactured rubber goods	625,000	1,861,000	2,199,000	$65,000	143,000
Exports to					
Manufactured rubber goods	1,285,000	875,000	5,333,000	58,000	.....

There were also shipped from the Paris consular district to the United States, the Philippines and Porto Rico, during 1914, rubber goods and waste to the value of $295,794, against similar exports in 1913 amounting to $482,376; from the Reims district, rubber substitutes valued in 1914 at $17,183 and in 1913 at $23,059.

In the scale at which motor vehicles are impressed into the military service in France, tires in good condition are rated at £10 each.

EMBARGOES.

On March 12 Sweden added to the list of articles prohibited export from that country, copper wire—rubber insulated and other—also articles of rubber for medical or hygienic use, and gutta percha paper and plasters.

A decree of March 30 prohibits the export from Spain to foreign countries of crude rubber, both natural and artificial, and of similar materials.

Denmark has also prohibited the export from that country of inner tubes and covers and other goods made principally of rubber, together with reclaimed rubber and rubber waste.

The Turkish Government has recently placed cables, cable materials, benzine and rubber on the conditional contraband list.

RUBBER SMUGGLING.

A report from Naples, Italy, by way of Paris, tells of the discovery by the police of an attempt to smuggle through Italy a large quantity of contraband goods apparently intended for Germany. Among these are said to have been 300 hogsheads labeled resin but which actually contained gutta percha; these being from the United States and consigned to Germany.

In the cargo of the steamer "Rysbergen," chartered by the Rotterdamsche Lloyd, rubber is said to have been found concealed in tobacco, of which 500 packets were consigned to an Amsterdam firm. A workman discovered the rubber and an official investigation is understood to have been started.

AUSTRIAN RUBBER REGULATIONS.

All rubber tires, except those in use and bicycle and horse-drawn vehicle tires, are subject to a new decree issued by the Austrian Government, and sworn statements concerning their kind, number and measurements are to be filed in the proper courts on the first and fifteenth of each month. The object of this decree is to place in the hands of the government full information concerning all available tires. As soon as this information is secured previous decrees prohibiting the sale of tires altogether will be modified so as to affect only such sizes and kinds of tires as are needed for military purposes.

EXPLAINING HIGH PRICES TO GERMAN CONSUMERS.

VERY naturally, the war has caused a great rise in the price of rubber goods in Germany, and the purchasing public has become quite aroused over the matter and has shown a disposition to hold the dealers responsible. In order to assist the dealer in explaining the situation to his customer, the "Gummi-Zeitung" has prepared a circular, which dealers can secure in quantities for distribution to their retail trade. As this circular gives some further light on the rubber industry in Germany today, it is reproduced below:

WHY ARE RUBBER GOODS SO EXPENSIVE?

"War, especially when it lasts a long time, results in a rise in the prices of all commodities. This is due to the gradually growing scarcity of raw materials, decreased manufacturing facilities and to the curtailment of production, especially on account of shortage in skilled labor, which has to be replaced by less efficient help. Increased selling and delivering expenses are also responsible. These causes especially affect the rubber branch and increase the price of the finished article.

"When the war broke out, Germany had only a small stock of crude rubber and, through England's joining in the struggle, importations of rubber were stopped almost completely. Then, for military purposes, the army placed its hand on all crude rubber available, allowing only a very small quantity for private use. The same applies to other raw materials used in the manufacture of rubber goods—cotton, hemp, fabrics, coloring materials, chemicals and especially solvents, like benzine and turpentine. Then the price of coal rose tremendously. All this naturally had its effect on the price of rubber goods.

"The curtailment of production is further due to the fact that a great number of trained employes and workmen were called to the colors, and no skilled help was available to take their places. This deranged deliveries and contributed to increase the cost of production of rubber articles.

"The cost of selling and delivering was increased through the shrinkage in communications by rail, the shortage in labor, in horses and wagons for handling freight and the increased cost of traveling.

"Under these conditions no one can consider the general increase in prices as unreasonable, for it is quite impossible to produce and deliver merchandise at former prices. In this connection it is proper to mention the fact that the shortage in raw materials has made the production of many articles an absolute impossibility. These articles being now only obtainable in substitute qualities, consumers will be obliged not only to get used to the increased prices which in the circumstances cannot be avoided, but they will have to resign themselves to substitute qualities, which alone can be produced under present conditions. There is not only war bread, but also war rubber.

"Rubber manufacturers are doing all in their power to satisfy the needs of the consumer and prevent the stoppage of the rubber trade. Their efforts cannot be successful if consumers make impossible claims. Consumers must recognize the justice there is in the increased prices."

SUBSTITUTES FOR RUBBER GOODS.

A partial improvement in conditions has recently been reported by the German rubber industry, especially in branches manufacturing for the army and navy. The automobile industry, which is closely allied to the rubber business, has turned its attention to manufacturing aviation motors, the demand for which has been constantly increasing since the war began, and much overtime and night work is being done in this line. The manufacture of cables and insulated articles is fairly good.

The scarcity of crude rubber and the fact that most of it is held by the Government and allowed to be used only for army needs, have obliged manufacturers to abandon altogether the production of many articles. Some of these articles—rubber belts, washers, jar rings, penholders and advertising novelties, which are no longer manufactured from real rubber, are being turned out in substitutes, and the Geman rubber industry is growing uneasy about its future in this line of manufacture. It is feared that the consumers will become used to the substitute articles and will not readily be brought back to the purchase of real rubber goods. These fears have been increased by the fact that when the restrictions were placed upon the use of rubber some of the larger merchants attempted to purchase all the existing stock of rubber goods in the empire. This situation is considered as very dangerous to the industry, and all rubber manufacturers have been advised to hold their stock in rubber goods and distribute it as widely and equitably as possible among all their customers, so that these goods may not be monopolized and fall into the hands of a few dealers.

THE GERMAN RUBBER SHORTAGE.

The shortage of rubber in Germany is reported by a press correspondent at Copenhagen as being so acute that the government has arranged a special campaign for the collection of rubber articles throughout the empire. Wagons are to be sent through every district to collect all articles of rubber, even down to the baby soother. A report was received several months ago—as mentioned on page 226 of our issue of January—to the effect that new rubber articles other than those coming under the head of absolute necessities were being scrapped for military use.

Another indication of the extreme need of rubber in that country is contained in the report of a firm in Holland which recently received from Germany motor cars equipped with wooden wheels without tires.

WAR AND RUBBER.

The extraordinary conditions under which warfare is being carried on in Europe have created a great demand for atomizers, an apparatus that is produced in a great variety of forms by surgical rubber manufacturers. The excessive dampness of the trenches renders the warmest clothing of little value in protecting the soldiers against diseases of the respiratory organs; and atomizers alone are effective in keeping the passages of the throat and nose in a healthy condition.

Many German rubber manufacturers are devoting the leisure that is forced upon them by war conditions to the study of problems for which they had no time during active business. They are giving careful study to their methods of manufacture, with a special view of making all possible savings in material, time and labor. Further, they are giving unusual attention to the use of waste materials.

THE LEIPZIG FAIR.

The Leipziger Messe, or sample exhibition, at Leipzig, Germany, usually held during the last week of February and the last week of August, opened this year March 1, and continued for 5 days. The buyer for a large New York store, who visited the fair, is quoted as stating that instead of the usual 200 to 300 American buyers, there were but 12 in attendance on this occasion; that because of lack of labor and materials many manufacturers have given up exhibiting, and that the toy trade is in bad condition. In a rubber factory visited, he reports that he was unable to buy rubber balls or rubber goods of any description, but discovered a gelatine ball which has been developed since the war.

GERMAN SURGICAL RUBBER MANUFACTURERS INCREASE PRICES.

Certain decrees of the German war department having made it impossible for manufacturers in that country to continue making a number of surgical rubber articles, the German Association of Surgical Hard and Soft Rubber Manufacturers recently resolved to increase the prices of all the rubber goods they produce—the resolution taking effect March 20. The prices of all hard rubber articles and of all articles made of rubber in conjunction with other materials were uniformly advanced 50 per cent. Soft rubber goods and seamless rubber articles were advanced 75 per cent. in price.

AUSTRIANS INCREASE PRICES OF RUBBER GOODS.

Following the decision of the "German Association of Hard and Soft Surgical Rubber Manufacturers," increasing the prices of German manufactured surgical rubber goods from 50 to 75 per cent., Austrian rubber manufacturers have increased their prices for same articles from 50 to 60 per cent.

THE RUBBER TRADE IN JAPAN.

By Our Regular Correspondent.

THE Japanese rubber trade has not escaped the effects of the British embargo on the export of rubber from home and colonial ports. Ceylon and the Straits Settlements have in the past formed the chief source of the Japanese crude rubber supply, and the continuance of the embargo for a prolonged period would naturally have meant serious loss to the manufacturers of this country. The matter was taken up by the foreign and agricultural departments of the Japanese Government and requests made that Great Britain except Japan from the embargo conditions; resulting in an arrangement, effected March 3, by which the embargo has been lifted on rubber exports to Japan, on condition that the government of this country shall control re-exports and also the export of manufactured rubber goods so that they positively shall not reach any enemy country. The ordinance issued by the Department of Agriculture and Commerce, under date of March 3, states that any person desiring to export crude rubber or rubber goods must make application to the Minister of Agriculture and Commerce, naming the variety and quantity of the goods to be exported, the ports of shipment and destination, the name of the consignee and the trade-mark. Any person exporting goods without official permission is liable to fine and imprisonment. Applications for permit to ship goods to British and Russian ports are especially likely to be granted.

The export trade of this country has in the past been chiefly with China, where there is a demand for jinrikisha tires and also a small but gradually increasing trade in rubber tires for bicycles. Chinese roads, however, are not especially suited to bicycles, and until these are improved there will probably not be any very large export of this commodity. So keen a competition has developed during the past year in the Japanese tire trade that one of the large companies—the Dunlop Rubber Co. (Far East) Limited—has changed its policy of distribution and is now seeking an extension of its trade with China rather than among home consumers.

Japanese planters now control in Johore and Borneo 46 plantations on which rubber is cultivated. These plantations cover an area of 92,871 acres, of which 39,045 acres is under cultivation, with 31,813 acres planted. Some of this area was opened as early as 1906, but the greater portion of it, or about 27,750 acres, came under cultivation during 1910 and 1911. The number of laborers employed on these various estates ranges from a very few on the smaller plantations up to 1,053—this latter number being employed on the Batu Pahat Rubber Estate at Suligarten.

The Philippine Islands are represented at the Panama-Pacific Exposition, at San Francisco, by an exhibit in blocks 19 and 20 in the Palace of Agriculture, which comprise about 9,500 square feet. Specimens of rubber grown in the islands are included in this display.

Automobiles to the number of 624, and valued at $886,416, were imported into the Philippine Islands in 1913, of which the United States supplied about 80 per cent., both in number and value. Tire imports for that year reached a total value of $180,823, of which a little over 60 per cent. were made in the United States and about 35 per cent. were from France.

In its issue of March 16, "Wileman's Review," published at Rio de Janeiro, has the following paragraph bearing on the preferential import tariff on rubber goods manufactured from Brazilian hard fine:

"There should be no difficulty, the Treasury thinks, in determining by physical tests such as tensibility whether foreign rubber manufactures contain only hard fine or other rubbers. Brazilian laboratories are quite up to the mark, and though not a single apparatus for tensile testing is to be found in the country are quite capable of getting over a simple difficulty like that by simple intuition. The real test, we imagine, will be the tensibility not of rubber, but of the fiscal consciences, proverbially elastic."

RUBBER EXPORTS FROM BOLIVIA.

Rubber to the amount of 5,143,214 kilos (11,335,644 pounds) and valued at 14,651,647 bolivianos ($5,699,491) was exported from Bolivia in 1913, distributed largely as follows:

To.	Quantity.	Value.
Belgium ..... *pounds*	970,489	$510,810
France	2,265,511	1,034,339
Germany	1,941,836	1,013,263
Great Britain	5,714,818	2,900,180
United States	385,920	209,873

RELATIVE VALUE OF DIFFERENT GRADES OF PLANTATION RUBBER.

Opinions differ as to the relative value of the several types of plantation rubber. However, during 1914 ribbed smoked sheet always brought better prices than other grades of plantation rubber and, although it is probable that this rubber is only superficially smoked, the smoke must as a rule improve the quality of the rubber. Otherwise the prices paid for ribbed smoked rubber would have to be considered as artificial.

The smoking process is expensive and attended with considerable fire risk, and planters would be glad to avoid it were they sure that in doing so they would not lower the quality and consequently the price of their rubber.

A NEW FUNGOID DISEASE AFFECTING PLANTATION RUBBER.

The Experiment Station at Peradeniya, Kandy, is now studying another fungoid disease which attacks *Hevea Brasiliensis* as well as a number of other plantation plants. This disease appears to have been imported into the island with different exotic plants and the first case of its attacking *Hevea* was reported in 1907, when it killed three large trees about 25 years old, one 12 years old and several younger plants of this species. This disease also affects *Hevea* in the Federated Malay States, but in no case, either there or in Ceylon, has it caused any widespread damage. It attacks the leaves and finally destroys the tree.

TRADING DIRECT WITH BATAVIA.

The Batavia Chamber of Commerce and Industry would like very much to establish direct communication with the United States. In a communication recently sent out from that body it says that "direct commercial and shipping relations between the United States and Dutch East India are under the present circumstances and for the future most desirable. The trade in several articles which was formerly transacted through the intermediary of Amsterdam and Rotterdam, such as rubber, cocoa and hides, is now impossible, owing to the difficulty of shipping such goods to Holland."

The communication goes on to state that the Dutch East Indian colonies would profit by the direct import of flour and machinery and other commodities exported in large quantities from the United States, and it concludes with this paragraph:

"We are convinced that a direct steamship line between Batavia and New York will doubtless be a great benefit to the commercial relations between the two countries."

From Java and Madura exports of crude rubber, in 1914, aggregated 581,073 pounds, against 543,337 pounds in 1913; showing an increase of 37,742 pounds. For both years *Castilloa* furnished the most important figures, *Ceara* ranking second, and *Hevea* third, while *Ficus* furnished 13,200 pounds in 1913 and 8,800 pounds in 1914.

Some Rubber Planting Notes.

RUBBER EXPORTS FROM THE FEDERATED MALAY STATES.

ACCORDING to a cablegram from the government to the Malay States Information Agency, the exports of rubber from the Federated Malay States for the month of March amounted to 3,418 tons, as compared with 3,411 tons last month and 2,418 tons in the corresponding month last year.

Appended are the comparative statistics:

	1913.	1914.	1915.
January .....tons	2,131	2,542	3,473
February	1,757	2,364	3,411
March	1,737	2,418	3,418
Total	5,625	7,324	10,302

RUBBER INDUSTRY IN THE FEDERATED MALAY STATES.

In the Federated Malay States there were, in 1913, 734 rubber estates, comprising 830,078 acres of ground, of which 433,324 acres were planted in rubber; and during the year 53,131,904 pounds of crude rubber was exported.

The fall in the price of rubber has obliged plantation companies to carefully study their production costs, and well situated estates are now able to place their product on the market at an all-in cost of less than 1 shilling per pound.

Such a low figure is said never to have been reached in Sumatra, where the record for low cost of production is held by the Anglo-Sumatra Co., whose total cost of production works out at about 31 cents (American gold) per pound. For Sumatra an income tax takes the place of the Malayan export duty.

The estimated yield of the producing plantations in the Federated Malay States, for 1913, was 275 pounds per acre, and 201,207 laborers were employed on these plantations.

V-TAPPING IN THE EAST.

A few years ago, when the yields of many Eastern rubber plantations were far from being satisfactory, V-tapping was recommended. A big V encircling half the tree was to take the place of herring-bone and other systems. This was practically returning to the first method adopted when *Hevea* was being experimented on by scientists and planters in the Middle and Far East. Many opposed this return to V-tapping and their contention set further experimenters to work, with the result that V-tapping appears to be now giving way to the herring-bone system.

GERMAN NEW GUINEA CO.'S RUBBER PLANTATIONS.

The annual report published in Berlin on March 30, by the German New Guinea Co., states that the company's plantations produced but 39,194 pounds of rubber of all sorts during the year 1913-14; showing a decrease in production of more than 10,000 pounds. This was due partly to the fall in rubber prices but especially to shortage of labor brought about by a very severe epidemic among the coolies. The German New Guinea Co. is replacing great areas of rubber plantations by cocoanut groves. In some parts of its estate this company has interplanted cocoanuts with rubber, and in all cases the rubber has only been preserved where conditions are most favorable and where the trees produce especially high-class rubber.

THINNING OUT THE TREES.

Many estates in the low country of Ceylon are thinning out their rubber plantations and reducing the number of trees to about 100 per acre. Experience in planting in this district has proven the advantage of thinning out the over-planted areas. Reduction of the number of trees in shaded plantations has three advantages—actual increase in the yield of latex per given area, reduction in cost of collection and in labor force, and lastly, greater freedom from the ravages of fungoid pests.

RUBBER IN CEYLON IN 1914.

From January 1 to December 31, 1914, 35,318,269 pounds of native crude rubber was exported from Ceylon, as against 25,433,551 pounds during the same period of 1913; showing an increase of shipments of 9,884,718 pounds. Considering statistics from August 1 to December 31, 1914, during each of these five months, in spite of the fact that the war was in progress, the exports of rubber from Ceylon were much heavier than for the corresponding period of the previous year—the aggregate increase amounting to 4,709,396 pounds. Although public auctions were suspended at the commencement of the war, and in spite of the fact that figures representing private sales of rubber are unavailable, statistics in hand show that 13,334,557 pounds of rubber was offered at public auction in Ceylon during 1914, as compared with 12,013,824 pounds in 1913 and 6,260,026 pounds in 1912. Diamond-pattern smoked sheet was most in demand and was at a premium over other rubbers throughout the entire year. In fact all good rubber was well sold, but there was a very small demand for the poorer qualities. The great European war has had but comparatively little effect upon the Ceylon rubber industry.

ACETIC ACID FROM COCOANUT SHELLS.

A number of people in Ceylon have been experimenting in the manufacture of acetic acid for rubber coagulation, but the only place in the island where the manufacture of this coagulant has been carried on in a systematic manner is on the estate of the Pitakande Tea Co. (of Ceylon) Limited. This company obtains its acetic acid by the destructive distillation of cocoanut shells, and all the latex collected (which amounted to 72,747 pounds in 1914) is coagulated with acetic acid produced on the spot. The Pitakande company contemplates manufacturing acetic acid on a much larger scale and is providing itself with the proper machinery for this work.

FREIGHTAGE AT COLOMBO.

According to representations made to the Ceylon Association in London, by the Colombo Chamber of Commerce, considerable inconvenience is being felt in Ceylon through the shortage in freightage created by the war. This is due to the British Government's commandeering a great number of ships for military purposes, to the sinking of a certain amount of tonnage and to the withdrawal of all German bottoms. Many German ships captured as prizes have been set to work, but a great number are interned in neutral ports and therefore unavailable for freightage.

So far as rubber is concerned, this shortage in shipping facilities has not as yet been keenly felt, but unless there is some improvement between Calcutta, Colombo and New York, trade with North America will suffer severely. Bulky merchandise requiring more bottom room than rubber is badly affected by the lack of freightage.

In January, 1915, 3,473 tons of crude rubber was shipped from Port Swettenham, Selangor, as compared with 2,542 tons during the corresponding month of 1914. Rubber shipments from Port Swettenham amounted to 2,131 tons during February, 1913, as against 1,200 tons shipped from there during the second month of 1912.

The United States consul stationed at Teneriffe reports that, according to official statistics, rubber and manufactures of rubber to the value of $73,242 were imported into the Canary Islands during 1913; while the estimate for 1914, based on information supplied by leading importing firms, is given as $65,658.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED MARCH 16, 1915.

NO. 1,131,760. Tire making machine. T. J. Whalen, New Brunswick, assignor to H. M. Marble, Newark—both in New Jersey.
1,131,772. Vehicle tire. G. H. Chinnock, New York, N. Y.
1,131,809. Tire. B. J. Zobel, Detroit, Mich.
1,131,932. Bath tub and mat therefor. E. N. Hydeman, Lawrence, Mass.
1,131,993. Apparatus for treating coated fabrics. B. F. Chamberlin, Jr., Boston, and J. N. Moulton, Haverhill, assignors to Massachusetts Chemical Co., Boston—both in Massachusetts.
1,132,017. Cushion horse shoe. W. J. Kent, New York, N. Y.
1,132,031. Resilient tire. E. Radke, Blue Earth, Minn.
1,132,039. Vehicle wheel. J. M. Scheurich, Chicago, Ill., assignor of one-half to J. E. Scheurich, Hot Springs, Ark.
1,132,076. Apparatus for winding bobbins. A. De Laski, Weehawken, assignor to The De Laski & Thropp Circular Woven Tire Co., Trenton—both in New Jersey.
1,132,127. Resilient wheel for vehicles. J. F. Sipe and H. E. Sipe—both of New York, N. Y.
1,132,243. Face steamer. D. S. Daily, assignor of one-half to T. J. Purcell—both of San Francisco, Cal.
1,132,250. Mold for pneumatic tire casings. A. W. Findlayson, Detroit, Mich., assignor to F. S. Stoepel and Claud D. Doyle, trustees.
1,132,346. Water wings. C. Holroyd, Pittsburgh, Pa.
1,132,359. Auto tire bead wrapping machine. F. W. Kremer, Carlstadt, N. J.
1,132,395. Hose supporter. E. Scudder and C. M. Corlew, assignors of one-third to J. Carleton—all of Sioux City, S. D.
1,132,451. Multiple conductor electrical cable. C. W. Davis, Edgeworth, assignor to Standard Underground Cable Co., Pittsburgh—both in Pennsylvania.
1,132,452. Multiple conductor cable. C. W. Davis, Edgeworth, assignor to Standard Underground Cable Co., Pittsburgh—both in Pennsylvania.
1,132,492. Resilient wheel. J. F. Sipe and H. E. Sipe, New York, N. Y.

Trade Marks.

79,663. Frank H. Fleer Corporation, Philadelphia, Pa. The word *Bobs*. For chewing gum.
80,158. The New York Mackintosh Clothing Co., Mamaroneck, N. Y. The word *Bestyette*. For rubber surgical blankets, hot water bottles, syringes, and rubber tubing for surgical work.
83,105. The Bee Bee Confection Co., Dayton, Ohio. The words *Fan Tan*. For chewing gum.
83,530. Double Tread Tire Co., Inc., New York, N. Y. The word *Doutre* within a tire. For rubber automobile tires.
83,735. Pulver Co., Inc., Rochester, N. Y. The words *Too Choos*. For chewing gum.
83,933. India Rubber Co., New Brunswick, N. J. The word *"Inco."* For battery jars.

ISSUED MARCH 23, 1915.

1,132,634. Laminated cohesive interwound fabric constructed in tubular and annular form. L. A. Subers, Cleveland, Ohio.
1,132,635. Automatic machine for constructing a laminated cohesive interwound tubular fabric capable of assuming an annular form. L. A. Subers, Cleveland, Ohio.
1,132,693. Puncture proof tire. F. P. Spalding, St. Louis, Mo.
1,132,788. Pneumatic tire. A. C. Mather, Chicago, Ill.
1,132,798. Cushion tire. A. Schick, Wheeling, W. Va.
1,132,904. Apparatus for shaping the outer casings of pneumatic tires. G. W. Bell, Stockport, England.
1,132,971. Method of manufacturing articles of vulcanizable plastics. R. B. Price, Mishawaka, Ind.
1,132,977. Hot water bottle. M. Rosenthal, New York, N. Y., assignor of one-half to G. Schmidt, Jr., Elizabeth, N. J.
1,132,998. Pneumatic tire. F. Bain, La Grange, Ill., assignor to Federal Rubber Manufacturing Co., Milwaukee, Wis.
1,133,066. Tire of resilient material comprising strips for insertion within the tire. H. C. Seipp, Pittsburgh, Pa.
1,133,102. Resilient tire. H. C. Cohen, Syracuse, N. Y.
1,133,130. Resilient wheel having a plurality of pneumatic cushions interposed between rims. A. J. Granger, Saliz, Iowa.
1,133,135. Cushion top lift for heels. J. A. Hall, assignor of one-half to W. M. Lord—both of Union, N. H.
1,133,153. Casing for pneumatic tires. E. H. Jones, London, England.
1,133,170. Resilient tire. C. S. Morse, De Kalb, Ill.
1,133,194. Bib. A. D. Sylvie, Brooklyn, N. Y.
1,133,202. Life saving apparatus. R. J. Train and A. Houston—both of Nashville, Ont., Canada.

Designs.

47,135. Automobile tire. H. H. Holdaway, Los Angeles, Cal.
47,139. Tire casing. T. R. McKennan, East Palestine, Ohio.
47,143. Tire tread. A. Palder, Boston, Mass.
47,147. Comb. W. W. Weitling, College Point, assignor to American Hard Rubber Co.—both in New York.

Trade Mark.

83,274. The B. F. Goodrich Co., New York, N. Y. The word *Jiffy*. For packages of rubber solution for the repair of rubber tires.

ISSUED MARCH 30, 1915.

1,133,300. Apparatus for indicating variations in gage of insulated wire. W. H. McGauley, Bridgeport, Conn.
1,133,309. Tensioning device. E. Nall, assignor to The Goodyear Tire & Rubber Co.—both of Akron, Ohio.
1,133,322. Process of rubberizing fabric. F. A. Seiberling, Akron, Ohio.
1,133,349. Fountain pen. R. W. Whitney and C. N. Richards—both of Cleveland, Ohio.
1,133,364. Braiding machine. H. Z. Cobb, Winchester, Mass.
1,133,440. Machine for doubling fabrics. A. Leisel, Newburgh, N. Y.
1,133,445. Collapsible core. G. H. Naylor, assignor to F. R. Parker—both of Trenton, N. J.
1,133,610. Tubing machine. A. Bleecker, assignor to The Portage Rubber Co.—both of Barberton, Ohio.
1,133,622. Handle covering. W. A. Darling, New York, N. Y., assignor to Continental Rubber Works, Erie, Pa.
1,133,779. Vehicle wheel with pneumatic tire. O. Zancan, New York, N. Y.
1,133,790. Purified gum and process of obtaining same. W. H. Bradshaw, Brooklyn, N. Y.
1,133,815. Truss comprising a chambered body formed of rubber. W. J. Miller, Kalamazoo, assignor to Easy Truss Co., Battle Creek—both in Michigan.
1,133,820. Dipping and drying machine. E. T. Richert, assignor to The Reality Rubber Co.—both of Massillon, Ohio.
1,133,839. Cloth cutting machine. F. J. Clark, assignor to Eastman Machine Co.—both of Buffalo, N. Y.
1,133,938. Pneumatic tire for road vehicles. E. R. Devereux, London, England.
1,133,945. Diaper. J. D. Farkas, assignor to J. J. Beyerle Manufacturing Co.—both of Brooklyn, N. Y.
1,133,952. Process of reclaiming old or waste vulcanized india rubber. T. Gare, New Brighton, England.
1,133,965. Arch support. P. B. Howard, Newtonville, Mass.
1,134,073. Chicle substitute and process of making same from gutta. G. B. Bradshaw and W. H. Bradshaw—both of Brooklyn, N. Y.; said G. B. Bradshaw assignor to W. H. Bradshaw.

Designs.

47,159. Golf or playing ball. E. Kempshall, Washington, D. C.
47,165. Bathing cap. T. W. Miller, assignor to The Faultless Rubber Co.—both of Ashland, Ohio.
47,166. Bathing cap. T. W. Miller, assignor to The Faultless Rubber Co.—both of Ashland, Ohio.
47,167. Bathing cap. T. W. Miller, assignor to The Faultless Rubber Co.—both of Ashland, Ohio.
47,168. Bathing cap. T. W. Miller, assignor to The Faultless Rubber Co.—both of Ashland, Ohio.
47,176. Bathing cap. G. F. Wentz, assignor to The Faultless Rubber Co.—both of Ashland, Ohio.

Trade Marks.

75,162. Arkay Rubber Co., New York, N. Y. The word *Arkay*. For rubber elastic bands.
76,347. Carson, Pirie, Scott & Co., Chicago, Ill. The word *Laurel*. For women's, misses' and children's raincoats, etc.
82,433. Tire Seal Co., Inc., New York, N. Y. An illustration of a wheel and tire with the word *Orr's*. A preparation to seal punctures in tires.
83,405. Continental Rubber Works, Erie, Pa. The word *Vitalic*. For rubber heels and rubber gloves.
83,563. United Drug Co., Boston, Mass. The word *Rexall*. For tennis balls, golf balls, etc.
83,746. Boston Woven Hose & Rubber Co., Boston and Cambridge, Mass. The words *Good Luck*. For rubber jar rings and rubber hose.
83,807. J. J. Bukolt, Stevens Point, Wis. The word *Highway*. For tire strips or tire protectors.
84,019. Bittel-Leftwich Tire Service, St. Louis, Mo. The word *Service*. For inner tubes for pneumatic tires.
84,135. Kansas City Wholesale Grocery Co., Kansas City, Mo. The portrait of O. Henry, with name underneath. For chewing gum, etc.
84,484. Healy Shoe Co., Inc., New York, N. Y. The words *Fair Play*. For boots and shoes made in whole or in part of rubber.
84,706. Redmanol Chemical Products Co., Chicago, Ill. The word *Redmanol*. For insulating substance.

ISSUED APRIL 6, 1915.

1,134,172. Feed mechanism for mixing mills. P. E. Welton, assignor to Katherine B. Welton—both of Akron, Ohio.
1,134,173. Feed mechanism for mixing mills. P. E. Welton and Harry A. Welton, assignors to Katherine B. Welton—all of Akron, Ohio.
1,134,208. Machine for covering circular objects. C. J. Landin, Boston, assignor to Boston Woven Hose & Rubber Co., Cambridge—both in Massachusetts.
1,134,238. Belt. C. S. Smith, Providence, R. I.; W. H. Thornley, Providence, R. I., administrator of said Smith, deceased.

1,134,262. Cementing machine. J. B. Hadaway, Swampscott, Mass., assignor to United Shoe Machinery Co., Paterson, N. J.

1,134,291. Tire. W. J. Spencer, New York, N. Y.

1,134,293. Fabric tearing device. W. C. Stevens, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,134,361. Self inflating tire. A. B. Wetherell, Pittsburgh, Pa.

1,134,383. Rubber heel for shoes, having a stationary part and a part arranged to turn. E. S. Helwitz and A. Lobel—both of New York, N. Y.

1,134,454. Machine for making solid rubber tires. H. Hennig, Bridgeport, Conn.

1,134,660. Pneumatic tire. A. M. Allen, St. Louis, Mo.

1,134,701. Pneumatic tire. C. D. Seeberger, New York, N. Y.

1,134,936. Fountain pen. J. Abegg, Hoboken, N. J., assignor to The Picard Importing Co., Inc., New York, N. Y.

1,134,950. Self inking hand stamp. H. S. Folger and C. L. Redfield—both of Chicago, Ill.; said Redfield assignor to said Folger.

Trade Marks.

82,202. British American Manufacturing Co., Springdale, Conn. The word *Zama*. For waterproofed fabric.

83,341. E. L. Burrell, Chicago, Ill. The word *Alfalfa* in white letters on a black background. For impregnated woven fabric, belting and hose formed from the same impregnated woven fabric belting by the addition of a rubber coating and a rubber lining.

ISSUED APRIL 13, 1915.

1,135,030. Hoof pad. A. Larsen, Chicago, Ill.

1,135,236. Improvement in reclaiming vulcanized rubber scrap. O. A. Wheeler, assignor of one-third to E. D. Loewenthal, and one-third to B. Loewenthal—all of Chicago, Ill.

1,135,258. Pneumatic tired vehicle wheel. M. Clark, Chicago, Ill.

1,135,273. Pneumatic tire tube. C. F. Fisk, Allentown, assignor of one-half to R. C. Dunham, Trenton—both in New Jersey.

1,135,425. Automatic air and elastic cushion tire. C. W. Barrett, San José, Cal.

1,135,774. Collapsible core for vehicle tires. P. De Mattia and B. De Mattia—both of Garfield, N. J.

1,135,777. Method of impregnating and coating materials. L. P. Destribats, Trenton, N. J.

1,135,833. Pullman and shampoo apron. L. Morse, New York, N. Y.

1,135,836. Tire. C. L. Neely and F. K. Neely—both of Corydon, Ia.

1,135,876. Tire for vehicles. T. Capparella and N. Mallone—both of New York, N. Y.

1,135,962. Method of molding hollow objects of refractory condensation products. J. W. Aylsworth, East Orange, assignor to Condensite Co. of America, Glen Ridge—both in New Jersey.

Trade Marks.

76,697. Lee Tire & Rubber Co., Whitemarsh township, Montgomery county, Pa. The word "*Vanadium*." For rubber water bottles, fountain syringes, etc.

79,168. Geo. Borgfeldt & Co., New York, N. Y. The word *Wireless*. For rubber and composition ink erasers.

82,506. C. A. Daniel, Philadelphia, Pa. The initials *T. T. T.* For rubber tires and pneumatic tires.

83,357. Woodbridge Chemical Co., Inc., Woodbridge, N. J., and New York, N. Y. The word *Air-In-Al*. For preparation for preventing the puncture of automobile tires.

83,771. H. T. Tucker, Fort Smith, Ark. An illustration of a flying duck with the words "*The duck that fools the sun.*" For rubber boots and shoes, waterproof coats, capes and caps.

84,523. Clincher Automobile Tire Manufacturers' Association, Cleveland, Ohio. An illustration of a tire rim. For vehicle wheel rims.

UNITED KINGDOM.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1913.

**Denotes Patents for American Inventions.*

[Abstracted in The Illustrated Official Journal, March 17, 1915.]

26,341 (1913). Mud guard which carries a rubber tread ring. J. T. Bower, Florence street, New Cross, London.

26,401 (1913). Rubber, gutta percha, or composition bowl for playing bowls. J. Lord, 33, Ellesmere Road, Stockton Heath, Warrington, Lancashire.

26,409 (1913). Elastic fabric. G. A. Dunn, 291 Great College street, Kentish Town, London.

*26,445 (1913). Weaving elastic fabric. W. Kops, Bretton Hall, Eighty-sixth street, New York, U. S. A.

*26,473 (1913). Air tube and chamber for wheel tire. W. Dunbar, Greensburg, Pa., U. S. A.

26,577 (1913). Conveyor belting, etc. J. E. Lawler and P. C. Ayres, 1, Broad street Place, London, and W. E. Wright, West Grove Mill, Halifax.

26,632 (1913). Wheel tire. G. W. Beldam, Boston Lodge, Ealing, and A. U. B. Ryall, Granville, Windmill Road, Brentford—both in Middlesex.

26,665 (1913). Rubber screw-stopper keys. J. Forshwa, "Mayville," Park Road, West Kirby, Cheshire.

26,793 (1913). Stocking suspender. E. E. Lawrence, 37, Brighton Road, Horsham, Sussex.

26,800 (1913). Garter. E. W. Harris, 79, Comeragh Road, West Kensington, and A. Pyke, 24, Lincoln's Inn Fields—both in London.

[Abstracted in The Illustrated Official Journal, March 24, 1915.]

26,988 (1913). Spring wheel with rubber ring and like cushion. G. G. Le Meneust, 4, Passage de la Madeleine, Paris.

27,024 (1913). Mud guard with disc of rubber. H. Davies, 11 Rifle street, Oldham, Lancashire.

27,035 (1913). Wheel tire with wooden or other ring to form resistance against side thrusts. C. R. S. J. Halle, 17, Warwick Gardens, Kensington, London.

27,041 (1913). Mud guard comprising ring of rubber. E. D. Howard, 40, First avenue, Manor Park, London.

27,043 (1913). Molding combs. W. J. Jackson, Mellersh—28, Southampton Buildings, London.

27,055 (1913). Molding combs. W. J. Jackson, Mellersh—28, Southampton Buildings, London.

27,118 (1913). Special apparatus for making tire covers. J. M. O'Brien, 10, Rydal Road, Streatham, London.

27,128 (1913). Plastic compositions of benzol, carbon bisulphide and rubber. A. C. de Caudemberg, 20, Boulevard Raimbaldi, Nice.

27,199 (1913). Vehicle spring comprising an inflatable tube. R. H. Shaw, 17, East Park Road, Blackburn, Lancashire.

*27,268 (1913). Jackets and covers for wheel tires. A. W. Livingston, 60 Bacon Building, Oakland, Cal., U. S. A.

27,383 (1913). Air tubes for wheel tires. J. W. Townsend, 37, Broad street, Banbury, Oxfordshire.

27,437 (1913). Air containers for pneumatic tires. E. Breuer, Deutsche Staatsgewerbeschule, Innsbruck, Austria.

*27,531 (1913). Cover for a pneumatic tire. O. Mussinan, 52 West Eighty-second street, New York, N. Y., U. S. A.

27,551 (1913). Treating fibers with rubber solution. W. E. Muntz, 6, Breams Buildings, Chancery Lane, London.

[Abstracted in The Illustrated Official Journal, March 31, 1915.]

27,622 (1913). Stocking suspender. T. McKenna, 31, Basinghall street, London.

*27,638 (1913). Tire with rims enclosing air tubes or chambers. J. J. Luck, San Antonio, Tex., U. S. A.

27,837 (1913). Head massage. H. O. Traun, 59, Meyerstrasse, Hamburg, Germany.

27,986 (1913). Life saving garments. E. Heberlein, Knighton House, The Manor Way, Blackheath Park, London.

28,065 (1915). Vehicle wheels. W. J. Jackson, Mellersh, 28, Southampton Buildings, London.

28,114 (1913). Rubber washer for golf shoe studs. R. M. Thomson, 26, Old Sneddon street, Paisley.

*28,163 (1913). Machine wrapping and unpacking. C. Keuntzel, 129 Good street, Akron, Ohio, U. S. A.

*28,167 (1913). Process for reclaiming waste rubber. H. W. Kugler, Akron, Ohio, U. S. A.

28,185 (1913). Cutters for tapping rubber trees. J. Bosch, Kohoeripan, near Manondjaja, Java.

28,193 (1913). Packing discs, the strands of which are impregnated with a solution of rubber, gutta percha, balata, etc., before winding. G. H. Cook, Lion Works, Garford street, Poplar, London.

28,195 (1913). Ball. A. F. Dimmock, 14, Princes Square, Harrogate, Yorkshire.

[Abstracted in The Illustrated Official Journal, April 8, 1915.]

28,211 (1913). Driving belt with rubber links. S. W. B. Renouf, 8, Abbotsford Terrace, Church Road, Portsmouth.

*28,282 (1913). M. W. Murray, 113 Illinois avenue, St. Joseph, Mo., U. S. A.

28,331 (1913). Waterproofing hats. J. E. Owen, 169, Devonshire street, Globe Road, Mile End, London.

28,353 (1913). Flexible tubing. A. J. Smith (trading as Glasgow Motor Tyre and Rubber Co.), 52, Renfrew street; J. Bolton, 103 Walter street, Dennistoun, and J. McInnes, 207, Cumbernauld Road—all in Glasgow.

28,387 (1913). Medical and chemical flasks comprising rubber tubing. G. R. Hughes, Great Hampden, Bucks, and W. Mair, Viewfield, Banstead Road, Ewell, Surrey.

28,424 (1913). Spring wheel with pneumatic rubber ring. A. E. Berger, Anor (Nord), France.

28,744 (1913). Hot water bottle stopper. T. Rowe, 52, Harold Road, Leytonstone, London.

28,765 (1913). Wheel tire. J. Vaughan Sherrin, The Woodlands, Ruckinge, Kent.

28,784 (1913). Improvement in fabric wrapping machine. J. H. Nuttall, and D. Bridge & Co., Castleton Iron Works, Castleton, Lancashire.

THE FRENCH REPUBLIC.

PATENTS ISSUED (With Dates of Application).

474,220 (November 8, 1913). Process for preparing a plastic matter that has the compressibility of rubber and is a substitute for it in most of its applications. E. Serre.

474,250 (June 29, 1914). Machine for molding and vulcanizing tire casings, solid tires and the like. H. J. Doughty.

474,254 (June 29). Metallic wheel. Larmenier et Cie.

474,280 (November 15, 1913). Non-skid solid tires. E. Clerget.

474,284 (June 29, 1914). Replaceable elastic heel. E. K. Czernowski and A. Siekacz.

474,345 (June 30). Improved pneumatic tire. E. Massé.

474,376 (November 22, 1913). Pneumatic tire with large cooling surface. H. de Hooydonck.

474,472 (July 1, 1914). Wooden wheel with a demountable metallic rim for use with solid rubber tires. Société Générale des Établissements Bergougnan.

474,475 (July 2). Elastic lining for automobile tires. F. W. Köhler.

474,480 (July 2). Improved valves for pneumatic tires. A. Schrader's Son, Inc.

474,533 (July 2). Improved detachable rubber heels. G. Alexander and A. J. F. Lipman.

474,538 (July 2). Improved elastic wheels. W. M. Hoffman.

474,582 (March 23). Tire. C. H. de Wall.

474,613 (December 12, 1913). Elastic tires. G. M. Marcy.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

Patents Issued (With Dates of Validity).

283,750 (February 4, 1914). Flange washer partly of rubber. Alfred Schmidt, Smichow b. Prag, Bohemia; represented by B. Petersen, patent lawyer, Berlin, S. W. 11.

283,755 (March 19). Protector for rubber tires. Ehhehard Hans Hausdorff, 62, Sonnenbergerstrasse, Wiesbaden.

283,760 (September 9, 1913). Balloon fabric. Walter Seyd, 128 Allee, and Paul Benrath, 17, Dornerbruchenstrasse—both in Barmen.

283,836 (August 22, 1914). Machine for covering the palate plate for artificial teeth with rubber. Dr. Georg Schwartz, 54, Langgasse, Wiesbaden.

283,842 (June 6, 1913). Piston packing constituted by a row of separate rings. Charles White, Baltimore, Maryland, U. S. A.; represented by S. F. Fels, patent lawyer, Berlin, S. W. 61.

283,848 (January 4). Machine for manufacturing tire treads. Henry James Doughty, Edgewood, Vermont, U. S. A.

283,937 (May 29, 1914). Press for the manufacture of solid tires or other rubber articles. Continental Caoutchouc und Gutta-Percha Co., Hanover.

284,035 (May 7, 1914). Anti-skid device for vehicle wheels. Eduard Pister, St. Avold, Lorraine.

284,079 (February 25, 1913). Muffler pipe covering with rubber packing. Erwin Braun, 61a, Königsteiner Strasse, Höchst, a. M.

284,164 (July 26). Transmission belt. Otto Gehrekens, Hamburg.

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

IN the chemical market the situation may be summed up by stating that those chemicals which are imported or used for military purposes are scarce and some are almost out of reach, while those of domestic production and have no military value are dull.

There are persistent reports to the effect that paint materials are in for a better demand this month, but with a few exceptions the prices are the same now as a month ago. Zinc oxide is normal and the prices quoted are firm owing to the strength in zinc ore. Dry colors are unsettled and many of them are difficult to obtain. English vermilion can be obtained only in small quantities and at an unusually high price. English chalk in considerable quantities arrived late in the month, but considering the amount consumed the supplies are really insufficient. It is impossible to obtain Cadmium yellow at the present time. Crimson and golden antimony have advanced in price, and the former is not generally obtainable. Black hypo also is not quoted by some of the principal dealers. Lithopone has had a fair demand and some of the mills are buying for future delivery. The prices are still firm and the rise in spelter values does not tend to weaken prices. White purified beeswax has advanced in price and carnauba wax has declined.

The demand for toluol is steadily increasing and some domestic manufacturers are now offering quotations on small quantities of all grades. The manufacturers of benzol continue to quote high prices on all grades, although a few jobbers are offering small lots at a dollar a gallon. The Department of Commerce has made public the report of Dr. Norton on the dye industry, in which the statement is made that the Pittsburgh district will soon produce 20,000 gallons of benzol per day, and the United States Steel Co. at Gary, Indiana, will produce 12,000 gallons daily, and there are several more large plants under construction which will furnish more. These plants wash the gas from the coke ovens.

PRICES OF CHEMICALS AND COMPOUNDING INGREDIENTS.
NEW YORK, APRIL 30, 1915.

Acetone (drums)	lb.	$0.20	@	
Acid, acetic, 28 per cent. (bbls.)	lb.	.03	@	
glacial (carboys)	lb.	.11	@	
Aluminum Flake (carloads)	ton	18.00	@	
Antimony, crimson, sulphuret of (casks)	lb.	.67	@	
golden, sulphuret of (casks)	lb.	.40	@	
Arsenic Sulphide	lb.		none	
Asbestine	ton	15.00	@	
Asbestos	ton	20.00	@	50.00
Asphaltum, "G" Brilliant	ton	40.00	@	
Barium Carbonate	lb.		none	
Barium Sulphate, precipitated	ton	65.00	@	
Barytes, domestic	ton	12.50	@	17.50
foreign	ton	17.50	@	22.50
Basofor	ton	65.00	@	
Benzol, 90 per cent.	gal.	1.00	@	1.25
Beta-Naphthol	lb.		none	
Black Hypo	lb.	.25	@	.30
Blanc Fixe	lb.	.03¼	@	
Cadmium, yellow	lb.		none	
Carbon Bisulphide (drums)	lb.	.05¼	@	
Carbon Tetrachloride (drums)	lb.	.16	@	
Caustic Soda (bbls.)	lb.	.03	@	
Chalk, light precipitated (casks)	lb.	.05½	@	
China Clay, domestic	ton	10.00	@	12.00
imported	ton	14.00	@	16.00
Chrome, green	lb.	.06	@	.15
yellow	lb.	.11	@	.13
Emarex	ton	70.00	@	
Fossil Flour, powdered	ton	50.00	@	
bolted	ton	60.00	@	
Gas Black	lb.	.04	@	.06
Gilsenite	ton	36.00	@	37.50
Granat Red	lb.		none	
Glycerine, C. P. (bulk)	lb.	.24	@	
Graphite (bbls.)	lb.	.02¾	@	
Green Oxide of Chromium (casks)	lb.	.22	@	
Iron Oxide, black (casks)	lb.	.05	@	.06
red, domestic (casks)	lb.	.01½	@	.04½
Infusorial Earth, powdered	ton	50.00	@	
bolted	ton	60.00	@	
Ivory, black	lb.	.08	@	.12
Indian Red	lb.	.02½	@	.05¼
Japan Red	lb.		none	
Lampblack	lb.	.03	@	.07
Lead, red oxide	lb.	.06	@	
sublimed blue	lb.	.05	@	
white, basic carbonate	lb.	.05¼	@	.05½
white, basic sulphate	lb.	.05	@	.05¼
Lime, flour	lb.	.01	@	.02
hydrated	lb.	.01	@	.02
Litharge	lb.	.05½	@	
English	lb.		none	
Lithopone, American	lb.	.04¼	@	.04¾
imported	lb.		none	
Magnesia, carbonate	lb.	.04½	@	.05
calcined, heavy	lb.	.06¼	@	.09¾
light	lb.	.20	@	.25
Magnesite, calcined, powdered	ton	30.00	@	35.00
Mica	lb.	.02	@	.05
Mineral Rubber	lb.	.02	@	.04½
Naphtha, stove gasolene (steel bbls.)	gal.	.13	@	
66@68 degrees	gal.	.18	@	
68@70 degrees	gal.	.19	@	
Oil, aniline	lb.	.90	@	1.00
corn, crude	lb.	.06¼	@	.06½
linseed (carload)	gal.	.62	@	
resin	gal.	.25	@	.55
rape seed, blown	gal.	.85	@	.87
Orange Mineral, domestic	lb.	.07½	@	.08¼
Paragol	lb.	.06	@	
Petrolatum	lb.		none	
Pine Tar, retort	bbl.	5.25	@	5.50
Prussian Blue	lb.	.46	@	.48
Pumice Stone, powdered (bbls.)	lb.	.02	@	
Resin (280-pound bbls.)	lb.	3.50	@	7.00
Rubber Flux	lb.	.10	@	
Rubber Substitute, black	lb.	.05¾	@	.09
red	lb.		none	
white	lb.	.08½	@	.15
Shellac, fine orange	lb.	.20	@	.23
Soapstone, powdered	ton	5.50	@	15.00
Sulphur Chloride (drums)	lb.	.07½	@	
Sulphur, flowers	cwt.	2.20	@	2.60
Talc, American	ton	5.50	@	15.00
French	ton	22.50	@	45.00
Tripolite Earth, powdered	ton	50.00	@	
bolted	ton	60.00	@	
Turpentine, spirits	gal.	.48½	@	
Ultramarine Blue	lb.	.06	@	.17
Vermilion, Chinese	lb.	.90	@	1.00
English	lb.	1.00	@	1.15
Wax, Bayberry	lb.	.22	@	.22½
Beeswax, white	lb.	.35	@	.50
Ceresin, white	lb.	.09½	@	.16
Carnauba	lb.	.26	@	.43
Ozokerite, refined white	lb.	.70	@	.75
Montan	lb.	.20	@	.22
Paraffine, domestic 120 m. p.	lb.	.04¼	@	.04¾
Whiting, Alba, factory	ton	6.50	@	7.50
commercial	cwt.	.45	@	.50
Paris white, American	cwt.	.70	@	.75
English cliffstone	cwt.	.75	@	1.10
Zinc oxide, American process	lb.	.05½	@	
French process, green seal	lb.	.10½	@	
French process, red seal	lb.	.10½	@	
French process, white seal	lb.	.11½	@	
Zinc sulphide	lb.		none	

Review of the Crude Rubber Market.

NEW YORK.

April 30, 1915.

THE congestion at the Cunard docks became so serious early in April as to require the service of additional dock-men to release the accumulating rubber. Complaints, however, are still heard that the service is not as prompt and efficient as it should be. The market for the first week was very quiet. Upriver fine stood uniformly at 57 cents, while First latex crêpe and Smoked sheet ribbed were quoted at 61 and 62 cents, respectively. On the 6th of the month a somewhat firmer tone developed, Upriver fine moving up to 58½@59 cents, while First latex crêpe and Smoked sheet ribbed were marked up to 64 and 65 cents. Upriver fine advanced another point, selling on the 8th at 59@60 cents. The second week brought plenty of inquiries, and although it was apparent that the manufacturers were well supplied, prices stiffened considerably. There was practically no spot plantation rubber. First latex, April-May delivery, sold at 60 cents, and Smoked sheet ribbed, April-May delivery, brought 61½ cents. The unusually heavy rains on the Upper Amazon have held back the usual rubber receipts from the interior. London's reserve stock is apparently getting low, and buying for European account has advanced the New York prices of Brazil sorts. By the middle of the month Upriver fine, spot, was selling in a firm market for 61 cents, and quotations for future delivery were not obtainable.

The hardening of the market during the second week of the month was not because of any urgent demand on the part of the manufacturers, but rather because of the slowness of deliveries, due chiefly to inadequate shipping facilities, but partly also to the dock troubles in London and to the fact that shipments were received at New York in such confused state that the assortment of lots consumed an unusual length of time.

For the last two weeks of the month the market has been quiet and dull. There were inquiries, but little business beyond that of a routine sort. Prices were irregular and only small lots were bought. The impression is that the manufacturers are well stocked for the time being and are looking forward to lower prices.

In spite of the unsettled conditions in Mexico, regular shipments of guayule have been made to the United States. The monthly average for the past five or six months has been 500,000 pounds.

The steamship "St. Stephen" from London with plantation rubber is now due. The steamship "Tropea" sailed from the same port April 21, and will arrive at New York in 14 days. The steamships "Claughton" and "Nebraskan" are reported to have sailed from London. All these ships carry rubber.

Direct shipments from Java are now coming regularly. The steamships "Rajah," "Malang" and "Oopeck" are en route from Batavia for New York with rubber.

Rubber afloat from Brazilian ports to the United States is as follows: The Booth Line steamship "Gregory," from Iquitos, with 140 tons, is en route to Manaos and Para, and is due in New York May 17. The steamship "Dunstan," of the same line, from northern Brazil coast ports, with 40 tons, is due May 7. The Lloyd Braziliero steamship "Purus," from Manaos and Para, with 380 tons, is now due. The steamship "Francis" sailed from Para on March 24, with 460 tons of rubber, for Liverpool.

The British steamship "Benedict" sailed from Manaos, April 4, with 2½ tons of rubber for New York. On same day the Brazilian steamship "Para" was loading 83 tons of rubber for the same port.

LONDON.

The first week of April was marked by a strong and active market, influenced no doubt by the activity of rubber shares. A fair business was reported and prices were supported by inquiries for quotations on all grades. At the end of the week Standard crêpe was *2s.* 4½*d.* for spot, and Smoked sheet was steady at *2s.* 5¼*d.* for spot. Hard Para was firm at *2s.* 6½*d.* Crêpe was in demand, especially July-December delivery, at *2s.* 3d., while Smoked sheet was selling at *2s.* 3⅝*d.*, a difference of only a little over ½*d.*

During the second week there was enough activity to steady prices, although actual trading was limited to future deliveries. The reported delay in the issue of shipping permits and the uncertainty of cargo space resulted in an easier market. By the middle of the month Standard crêpe was *2s.* 4*d.* for spot, July-December being *2s.* 2⅞*d.* Smoked sheet was *2s.* 5*d.* for spot, July-December being *2s.* 3½*d.* Para rubber has steadily shown strength, and advanced prices are quoted for Hard fine, which closed at *2s.* 6¾*d.*

It appears that the abolition of the rubber auctions has had a steadying effect on the London market and has eliminated, at least temporarily, the speculative feature.

According to communications from the American Consul at London, the exports of rubber declared at that port to the United States during the first three months of 1915 were valued at $13,882,728, as compared with $9,171,126 for the same period last year.

If the Dardanelles is opened it is quite possible that the British Government will commandeer many ships now carrying rubber and use them as transports. There is a ready market in France and Great Britain for Russian wheat, and ships will be needed for carrying this wheat as soon as the Dardanelles is open, and the result may affect plantation rubber considerably.

The market continued firm and quiet during the last two weeks, with little change. Prices for plantation grades were maintained on a basis of *2s.* 3½*d.* for spot. Standard crêpe was offered at *2s.* 3*d.* and smoked sheet ribbed at *2s.* 3¾*d.*

SINGAPORE AND COLOMBO.

Auctions are held regularly and the offerings are taken up promptly and at satisfactory figures. Shipments to London and the United States are delayed for lack of cargo space. The steamship "Indrakuala" from Singapore is due in New York May 5.

Messrs. Keel & Waldock, of Colombo, print the following information in their weekly report, concerning ocean rates: The freight on rubber from Colombo to London is 70*s.* plus 20 per cent. war surcharge; from Colombo to New York, 92*s.* 6*d.* plus 50 per cent. war surcharge, and from Colombo to the Continent, 70*s.* plus 20 per cent. war surcharge.

NEW YORK QUOTATIONS.

Following are the quotations at New York one year ago, one month ago, and April 30, the current date:

PARA.	May 1, '14.	Apr. 1, '15.	Apr. 30, '15.
Upriver, fine, new	74@75	58 @	60 @
Upriver, fine, old	.....	59 @60	62 @
Islands, fine, new	72@	53 @	53 @
Upriver, coarse, new	45@46	46 @	46 @
Islands, coarse, new	31@	30½@	30 @
Cameta	35@36	34 @	34 @
Caucho, upper	45@46	47½@	48 @
Caucho, lower	.....	44 @	45 @
PLANTATION HEVEA.			
Smoked sheet ribbed	68@69	Spot 65 @	59 @
		Afloat 62 @	58 @
First latex crêpe	67@69	Spot 62 @	58½@
		Afloat 61 @	57 @
Fine sheets and biscuits unsmoked	62@67	.....	.....

CENTRALS.			
Corinto	.....	46 @47	46 @
Esmeralda, sausage	45@46	46 @	45 @
Nicaragua, scrap	40@41	43 @44	44 @
Mexican, scrap	43@44	.....	46 @
Manicoba, scrap	.....	37½@	37½@
Mangabeira, sheet	.....	40 @	37½@
Guayule	.....	.....	28 @29
Balata, sheet	.....	.....	55 @
Balata, block	.....	.....	48 @
AFRICAN.			
Lopori, ball, prime	53@54	.....	.....
Massai, red	49@52	52 @54	54 @
Cameroon, ball	35@36	37 @40	.....
Benguela	.....	.....	30 @
Accra, flake	22@23	22½@23	23 @
EAST INDIAN.			
Assam	.....	.....	50 @
Pontianak	.....	.....	7¼@

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

MARCH 23.—By the steamer *Huayna*, from Itacoatiara and Iquitos:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Henderson & Korn	13,500	900	7,400	6.600=	28,400
IQUITOS.					
Meyer & Brown	.....	.....	.....	3,400=	3,400
H. C. Kupper	3,800	.....	3,800	13,800=	21,400
G. Amsinck & Co.	6,000	.....	2,400	8,800=	17,200
W. R. Grace & Co.	3,600	300	1,400	3,300=	8,600
H. A. Astlett & Co.	4,800	.....	700	7,500=	13,000
Total	18,200	300	8,300	36,800=	63,600

MARCH 23.—By the steamer *Huayna*, from Pará and Manáos:

Meyer & Brown	133,500	17,600	47,900	138,300=	337,300
Arnold & Zeiss	63,800	8,300	100,200	135,300=	307,600
Henderson & Korn	78,300	30,900	59,000	132,200=	300,400
Johnstone, Whitworth & Co.	.....	.....	26,900	109,900=	136,800
Robinson & Co.	110,200	300	22,300	.....=	132,800
Hagemeyer & Brunn	24,500	.....	18,800	40,800=	84,100
Robert Badenhop	67,200	5,400	4,200	.....=	76,800
H. A. Astlett & Co.	28,600	20,700	26,800	.....=	76,100
W. R. Grace & Co.	22,200	1,700	2,300	22,100=	48,300
G. Amsinck & Co.	26,400	700	7,500	11,200=	45,800
Davies, Turner & Co.	34,200	.....	.....	.....=	34,200
Total	588,900	85,600	315,900	589,800=	1,580,200

MARCH 29.—By the steamer *Stephen*, from Pará and Manáos:

Meyer & Brown	135,400	20,400	251,800	138,600=	546,200
Arnold & Zeiss	109,100	20,900	117,200	207,000=	454,200
H. A. Astlett & Co.	88,000	12,500	40,600	16,400=	157,500
Henderson & Korn	29,900	14,100	52,800	14,000=	110,800
G. Amsinck & Co.	16,900	12,600	16,600	29,400=	75,500
Hagemeyer & Brunn	22,500	2,000	26,000	.....=	50,500
Robert Badenhop	.....	.....	.....	44,200=	44,200
Muller, Schall & Co.	25,100	.....	3,400	6,400=	34,900
F. B. Ross & Co.	10,700	2,700	12,000	6,000=	31,400
W. R. Grace & Co.	.....	.....	8,900	21,000=	29,900
Robinson & Co.	19,500	.....	.....	.....=	19,500
Aldens' Successors, Ltd.	.600	.....	2,000	.....=	2,600
Total	457,700	85,200	531,300	483,000=	1,557,200
ITACOATIARA.					
Henderson & Korn	7,200	600	1,000	9,500=	18,300

APRIL 12.—By the steamer *Sao Paulo* from Pará:

Meyer & Brown	18,600	1,800	67,500	55,300=	143,200
General Rubber Co.	167,800	21,600	28,100	.....=	217,500
Henderson & Korn	23,100	6,000	92,500	8,400=	130,000
Arnold & Zeiss	14,800	4,500	28,600	44,900=	92,800
G. Amsinck & Co.	44,200	1,700	11,000	.....=	56,900
Muller, Schall & Co.	27,700	.....	.....	12,800=	40,500
Crossman & Sielcken	.....	.....	4,000	9,100=	13,100
Aldens' Successors, Ltd.	.....	.....	7,300	.....=	7,300
Total	296,200	35,600	239,000	130,500=	701,300

APRIL 8.—By the steamer *Sergipe* from Pará:

Meyer & Brown	68,600	3,900	73,800	138,800=	285,100
Arnold & Zeiss	62,100	13,200	52,600	54,700=	182,600
Hagemeyer & Brunn	150,500	.....	20,100	2,500=	173,100
H. A. Astlett & Co.	10,200	2,200	51,800	2,100=	66,300
Henderson & Korn	44,300	17,600	6,200	.....=	68,100
G. Amsinck & Co.	36,100	3,900	13,200	100=	53,300
A. D. Straus	39,300	.....	.....	.....=	39,300
Robert Badenhop	.....	.....	.....	21,800=	21,800
Various	11,800	.....	43,600	22,200=	77,600
Total	422,900	40,800	261,300	242,200=	967,200

APRIL 17.—By the steamer *Benedict* from Pará and Manáos:

Meyer & Brown	.....	5,700	56,700	.....=	62,400
Arnold & Zeiss	27,100	2,200	17,800	112,300=	159,400
Henderson & Korn	15,800	300	79,800	21,900=	117,800
Robinson & Co.	38,900	4,000	600	.....=	43,500
Johnstone, Whitworth & Co.	.....	.....	18,600	22,400=	41,000
Aldens' Successors, Ltd.	4,000	400	1,500	500=	6,400
Cowdrey & Co.	2,100	.....	300	1,600=	4,000
H. A. Astlett & Co.	1,400	1,300	500	.....=	3,200
Crossman & Sielcken	4,600	400	300	.....=	5,300
Total	93,900	14,300	176,100	158,700=	443,000
ITACOATIARA.					
Henderson & Korn	4,700	.....	2,200	1,600=	8,500

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		POUNDS.
MARCH 24.—By *El Mundo*=Galveston:		
Various		*300,000
MARCH 26.—By the *Zacapa*=Colombia:		
Schulte, Bunemann & Co.	1,200	
Pablo, Calvet & Co.	2,500	3,700
MARCH 26.—By the *Allianca*=Colon:		
G. Amsinck & Co.	200	
Fidanque Bros. & Sons	300	
Pottberg, Ebeling & Co.	300	
W. R. Grace & Co.	27,500	28,300
MARCH 29.—By the *Creole*=New Orleans:		
E. Steiger & Co.		40,000
MARCH 30.—By the *Calamares*=Port Limon:		
Isaac Brandon & Bros.	700	
A. A. Linde	300	1,000
APRIL 1.—By the *Antilles*=New Orleans:		
E. Steiger & Co.		35,000
APRIL 2.—By the *Colon*=Colon:		
G. Amsinck & Co.	5,300	
American Trading Co.	2,000	
W. R. Grace & Co.	600	7,900
APRIL 2.—By the *Terence*=Bahia:		
Adolph Hirsch & Co.	67,000	
J. H. Rossbach & Bros.	160,000	
Aldens' Successors, Ltd.	12,000	239,000
APRIL 5.—By the *Tenadores*=Port Limon:		
G. Amsinck & Co.	800	
Isaac Brandon & Bros.	700	
Gontard & Co.	500	2,000
APRIL 5.—By the *Siracla*=Guatemala:		
W. R. Grace & Co.	800	
West Coast Rubber Co.	700	
A. Rosenthal & Sons	2,000	3,500
APRIL 7.—By *El Siglo*=Galveston:		
Various		*230,000
APRIL 8.—By the *Santa Marta*=Colombia:		
A. Held	4,500	
R. Del Castillo & Co.	3,000	
International Bank Corporation	3,500	
G. Amsinck & Co.	600	
De Lima, Cortissoz & Co.	200	11,800
APRIL 10.—By the *Advance*=Colon:		
Otto Gerdau	10,900	
Lawrence Johnson & Co.	1,000	11,900
APRIL 12.—By the *Eastern Prince*=Bahia:		
J. H. Rossbach & Bros.	56,000	
Adolph Hirsch & Co.	26,000	
Aldens' Successors, Ltd.	6,000	88,000
APRIL 12.—By the *Ancon*=Colon:		
G. Amsinck & Co.	11,700	
W. R. Grace & Co.	16,700	
A. M. Capen's Sons	2,700	
H. Wolff & Co.	3,900	
Pablo Calvet & Co.	5,000	
Piza, Nephews & Co.	1,200	41,200
APRIL 14.—By *El Mundo*=Galveston:		
Various		*60,000
APRIL 15.—By the *Pathfinder*=Mexico:		
E. Steiger & Co.	11,000	
G. Amsinck & Co.	1,000	
Lawrence Johnson & Co.	7,600	
R. Del Castillo & Co.	500	
General Export & Commission Co.	200	19,700
APRIL 16.—By *El Sud*=Galveston:		
Various		*155,000
APRIL 15.—By the *Momus*=New Orleans:		
A. N. Rotholz	1,500	
E. Steiger & Co.	10,000	11,500
APRIL 17.—By the *Panama*=Colon:		
W. Loaiza & Co.	2,000	
Isaac Brandon & Bros.	2,000	
Goutard & Co.	200	
W. R. Grace & Co.	2,500	
M. L. Collantes	1,200	
Banco Italiano	6,500	14,400
APRIL 17.—By the *Boniface*=Pernambuco:		
J. H. Rossbach Bros. & Co.	25,000	
Various	55,000	80,000
APRIL 17.—By the *Boniface*=Natal:		
G. Amsinck & Co.	1,000	
Cowdray & Co.	1,000	
Hagemeyer Trading Co.	500	2,500
APRIL 17.—By the *Boniface*=Ceara:		
Various		14,000
APRIL 19.—By the *Tivives*=Belize:		
Rosenthal & Sons		700
APRIL 19.—By the *El Occidente*=Galveston:		
Various		*101,000
APRIL 20.—By the *Pastores*=Colon:		
G. Amsinck & Co.	1,000	
Isaac Brandon & Bros.	1,000	
Fruit Despatch Co.	500	2,500
APRIL 21.—By *El Alba*=Galveston:		
Various		*97,000
APRIL 22.—By the *Antilles*=New Orleans:		
E. Steiger & Co.		21,000
APRIL 23.—By the *Allianca*=Colon:		
G. Amsinck & Co.	2,500	
A. M. Capen's Sons	1,600	
Pablo, Calvet & Co.	2,500	
W. R. Grace & Co.	1,000	
H. Wolff & Co.	5,600	
Lanman & Kemp	1,800	
Isaac Brandon & Bros.	3,000	
Pottberg, Ebeling & Co.	1,500	
Fidanque Bros.	300	
M. A. de Leon & Co.	200	20,000
APRIL 23.—By the *Zacapa*=Colombia:		
Pottberg, Ebeling & Co.	2,000	
A. Held	2,000	
Winter, Son & Co.	2,000	
International Banking Corporat'n	3,000	
Maitland, Coppell & Co.	400	9,400

APRIL 23.—By *El Sol*=Galveston:

Various	*210,000

AFRICANS.

	Pounds.
MARCH 27.—By the *Lusitania*=Liverpool:	
Various	15,000
MARCH 29.—By the *Megantic*=Liverpool:	
Various	22,500
MARCH 29.—By the *New York*=Liverpool:	
Various	11,200
APRIL 5.—By the *Dunsley*=Liverpool:	
Robinson & Co.	7,000
Henderson & Korn	5,000
Rubber Trading Co.	20,000
Various	7,000 39,000
APRIL 10.—By the *Gorontalo*=Lisbon:	
Robert Badenhop	45,000
W. Stiles	22,500
Ed. Maurer	22,500
Carleton & Moffat	112,000
Various	50,000 252,000
APRIL 12.—By the *St. Louis*=Liverpool:	
General Rubber Co.	40,000
Michelin Tire Co.	33,500 73,500
APRIL 12.—By the *Arabic*=Liverpool:	
Henderson & Korn	11,200
APRIL 15.—By the *Cerea*=Lisbon:	
Meyer & Brown	30,000
Robert Badenhop	101,000
Ed. Maurer	22,500
Chas. T. Wilson Co., Inc.	22,500
Various	146,000 322,000
APRIL 15.—By the *Adriatic*=Liverpool:	
Henderson & Korn	4,500
APRIL 16.—By the *Orduna*=Liverpool:	
Meyer & Brown	11,000
Henderson & Korn	9,000
Rubber Trading Co.	31,000
Aldens' Successors, Ltd.	45,000
Various	13,700 109,700
APRIL 24.—By the *Strathan*=Lisbon:	
Various	105,000
APRIL 24.—By the *Lusitania*=Liverpool:	
Henderson & Korn	20,000

EAST INDIAN.

[*Denotes plantation rubber.]

	Pounds.
MARCH 27.—By the *Lusitania*=Liverpool:	
The B. F. Goodrich Co.	*12,500
MARCH 30.—By the *City of Rangoon*=Colombo:	
L. Littlejohn & Co.	*250,000
MARCH 30.—By the *Mississippi*=London:	
Meyer & Brown	*3,500
Rubber & Guayule Agency, Inc.	*22,500
Rubber Trading Co.	*11,200
Ed. Maurer	*20,000
The B. F. Goodrich Co.	*12,500
Dodwell & Co.	*27,000
L. Littlejohn & Co.	*10,000
Various	*160,000 *266,700
MARCH 31.—By the *Pathan*=Singapore:	
The B. F. Goodrich Co.	*215,000
APRIL 3.—By the *Suveric*=Colombo:	
General Rubber Co.	*235,000
L. Littlejohn & Co.	*165,000 *400,000
APRIL 5.—By the *Dunsley*=Liverpool:	
Arnold & Zeiss	*60,000
Rubber Trading Co.	*22,400 *82,400
APRIL 9.—By the *Frankmount*=London:	
Meyer & Brown	*45,000
Hadden & Co., Inc.	*123,000
Aldens' Successors, Ltd.	*100,000
Robinson & Co.	*112,000
General Rubber Co.	*450,000
Henderson & Korn	*95,000
The B. F. Goodrich Co.	*260,000
Johnstone, Whitworth & Co.	*30,000
Michelin Tire Co.	*85,000
Arnold & Zeiss	*205,000
W. R. Grace & Co.	*70,000
Charles T. Wilson Co., Inc.	*115,000
Robert Badenhop	*125,000
L. Littlejohn & Co.	*45,000
Ed. Maurer	*307,500
Rumsey & Greutert Co., Inc.	*11,200 *2,178,700
Rubber Trading Co.	67,200 *2,245,900
APRIL 9.—By the *Philadelphian*=London:	
Meyer & Brown	*100,800
Henderson & Korn	*45,000
The B. F. Goodrich Co.	*22,500
Various	*16,200 *184,500
APRIL 10.—By the *Gorontalo*=Batavia:	
General Rubber Co.	*135,000
G. Amsinck & Co.	*35,000
Manhattan Rubber Mfg. Co.	*27,000
Rubber Trading Co.	*22,500
Aldens' Successors, Ltd.	*10,000
Various	*10,000 *239,500
APRIL 14.—By the *Largo Law*=London:	
Meyer & Brown	*43,000
Rubber & Guayule Agency, Inc.	*9,000
Aldens' Successors, Ltd.	*22,500
L. Littlejohn & Co.	*33,500
Rubber Trading Co.	*202,000
Ed. Maurer	*480,000
Rumsey & Greutert Co., Inc.	*12,000
Various	*22,500 *824,500
APRIL 14.—By the *Minnehaha*=London:	
The B. F. Goodrich Co.	*315,000
Michelin Tire Co.	*2,500 *317,500
APRIL 16.—By the *Orduna*=Liverpool:	
The B. F. Goodrich Co.	*25,000
Various	*20,000 *45,000
APRIL 16.—By the *Lancastrian*=London:	
The B. F. Goodrich Co.	*190,000
General Rubber Co.	*112,000
Ed. Maurer	*22,500
Johnstone, Whitworth & Co.	*12,500
Michelin Tire Co.	*125,000 *462,000
APRIL 17.—By the *Kafue*=Colombo:	
Meyer & Brown	*86,000
General Rubber Co.	*150,000
Johnstone, Whitworth & Co.	*195,000
Various	*680,000 *1,111,000
APRIL 20.—By the *Queen Margaret*=London:	
The B. F. Goodrich Co.	*250,000
General Rubber Co.	*56,000
Michelin Tire Co.	*56,000
Ed. Maurer	*11,200
W. R. Grace & Co.	*7,000
Johnstone, Whitworth & Co.	*112,000
Goodyear Tire & Rubber Co.	*16,500
Various	*13,500 *522,200
APRIL 21.—By the *Saxon Monarch*=London:	
Meyer & Brown	*130,000
Ed. Maurer	*250,000
General Rubber Co.	*380,000
Arnold & Zeiss	*380,000
Aldens' Successors, Ltd.	*415,000
Hadden & Co., Inc.	*67,000
Henderson & Korn	*300,000
The B. F. Goodrich Co.	*220,000
Johnstone, Whitworth & Co.	*45,000
L. Littlejohn & Co.	*220,000
Robinson & Co.	*125,000
Charles T. Wilson Co., Inc.	*152,000
Robert Badenhop	*80,000
W. R. Grace & Co.	*20,000
Rubber Trading Co.	*103,500
Goodyear Tire & Rubber Co.	*125,000
Rumsey & Greutert Co., Inc.	*50,000
W. H. Stiles	*35,000
Various	*280,000 *3,377,500
APRIL 22.—By the *Samland*=London:	
The B. F. Goodrich Co.	*8,500
Various	*8,500 *17,000
APRIL 22.—By the *Chinese Prince*=Singapore:	
The B. F. Goodrich Co.	*740,000
Goodyear Tire & Rubber Co.	*90,000
Ed. Maurer	*25,000 *855 000
APRIL 23.—By the *Kasama*=Singapore:	
Johnstone, Whitworth & Co.	*130,000
Goodyear Tire & Rubber Co.	*115,000
Hood Rubber Co.	*160,000
Charles T. Wilson Co., Inc.	*80,000
L. Littlejohn & Co.	*80,000
Various	*260,000 *825,000
APRIL 24.—By the *Dardanus*=Batavia:	
General Rubber Co.	*407,500
Goodyear Tire & Rubber Co.	*85,000
Aldens' Successors, Ltd.	*4,500
Manhattan Rubber Mfg. Co.	*6,700
Johnstone, Whitworth & Co.	*5,000
Various	*130,000 *638,700

CUSTOM HOUSE STATISTICS.

PORT OF NIAGARA FALLS—MARCH, 1915.

Imports:	Pounds.	Value.
Balata	1,402,355	$493,744
Exports:		
India rubber	106,865	39,022

PORT OF SAN FRANCISCO—MARCH, 1915.

Imports:		
India rubber	11,315	$6,979
India rubber scrap	36,345	1,468

PORT OF NEW ORLEANS—MARCH, 1915.

Imports:		
India rubber	167,897	$57,867

PORT OF DETROIT—MARCH, 1915.

Imports:		
Rubber scrap	2,414	$100
Exports:		
Rubber scrap	1,005	53
Reclaimed rubber	47,534	6,496

PORT OF BOSTON—MARCH, 1915.

Imports:		
Gutta jelutong (Pontianak)	27,066	$1,095
Exports:		
Rubber scrap	2,721	713

EXPORTS OF INDIA RUBBER FROM MANAOS DURING THE MONTH OF MARCH, 1915.

	NEW YORK.					EUROPE.					GRAND
EXPORTERS—	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Suter & Co.	44,759	6,548	59,259	137,444	248,010	90,613	10,080	1,041	34,445	136,179	384,189
General Rubber Co. of Brazil	83,326	13,774	70,845	29,192	197,137	150,972	31,650	6,297	40,980	229,899	427,036
G. Fradelizzi	53,294	4,320	32,226	94,556	184,396	101,517	21,252	6,093	22,298	151,160	335,556
Pralow & Co.	146,759	14,357	80,014	80,436	321,566	5,280	4,320	.....	.....	9,600	331,166
Adelbert H. Alden, Ltd.	4,652	359	762	353	6,126	75,376	17,008	18,593	50,867	161,844	167,970
Tancredo, Porto & Co.	651	1,994	9,316	.....	11,961	57,710	6,148	5,807	20,591	90,256	102,217
I. G. Araujo	13,700	1,443	3,631	600	19,374	39,680	3,650	2,160	640	46,130	65,504
B. Levy & Co.	33,829	4,281	3,681	2,204	43,995	.....	.....	.....	5,324	5,324	49,319
H. Balding	.....	.....	.....	.....	.....	16,103	.....	311	20,165	36,579	36,579
Semper & Co.	5,083	1,300	6,006	2,835	15,224	11,870	2,098	1,213	200	15,381	30,605
Amorin Irmãos	.....	.....	.....	.....	.....	13,760	2,080	1,680	2,460	19,980	19,980
Araujo & Arcosa	1,431	544	1,220	13,328	16,523	.....	.....	.....	.....	.....	16,523
Moraes, Carneiro & Co.	983	.....	165	743	1,891	.....	.....	.....	.....	.....	1,891
Mesquita & Co.	.....	.....	.....	.....	.....	441	.....	1,099	190	1,730	1,730
Armazens Andresen	.....	.....	.....	.....	.....	.....	.....	434	.....	434	434
	388,467	48,920	267,125	361,691	1,066,203	563,322	98,286	44,728	198,160	904,496	1,970,699
In transit, Iquitos	18,836	149	4,124	7,309	30,418	9,042	1,330	2,951	4,105	17,428	47,846
Total	407,303	49,069	271,249	369,000	1,096,621	572,364	99,616	47,679	202,265	921,924	2,018,545

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

(From January 1 to March 8, 1914 and 1915. Compiled by the Ceylon Chamber of Commerce.)

To—	1914.	1915.
Great Britain ..... *pounds*	3,483,131	6,354,631
United States	1,034,078	482,225
Belgium	1,221,543	.....
Germany	323,379	.....
Russia	98,482	137,259
Japan	77,848	47,962
France	55,556	35,840
Straits Settlements	35,815	15,775
Australia	15,680	34,088
India	500	500
Canada and Newfoundland	.....	340.140
Total	6,346,012	7,448,420

(Same period 1913, 4,333,479 pounds; same period 1912, 2,631,066.)

The export figures of rubber given in the above table for 1914 include the imports re-exported. [These amount to 689,614 pounds.] To arrive at the total quantity of Ceylon rubber exported for that period deduct these imports from the total exports. The figures for 1915 are for Ceylon rubber only.

SINGAPORE.

Guthrie & Co., Ltd., report [March 9, 1915]:

The rubber auction held today established a fresh record as regards quantity catalogued, there being 222 tons offered.

A much better tone prevailed and prices all round showed an improvement. Bidding at the outset was slow, but during the course of the forenoon demand became very brisk. Fine ribbed smoked sheet at $130 and pale crepe at $128 showed an increase in each case of $5 over last auction. Unsmoked touched $116, an increase of $7.

One hundred and thirty-nine tons were sold.

The following was the course of values:

	In Singapore, Picul.*	Sterling equivalent per pound in London.	Equivalent per pound in cents.
Sheet, fine smoked	$125@130	2/ 4½@2/ 5½	57.77@59.80
Sheet, fair to good	115@124	2/ 2⅜@2/ 4½	53.46@57.27
Sheet, unsmoked	105@126	2/ 0⅛@2/ 4¾	48.90@58.28
Crepe, fine pale	120@128	2/ 3½@2/ 5⅛	55.75@59.04
Crepe, good pale	120@125	2/ 3½@2/ 4½	55.75@57.77
Crepe, fine brown	110@117	2/ 1¼@2/ 2⅞	51.18@54.47
Crepe, good brown	90@114	1/ 9⅛@2/ 2⅛	42.82@52.95
Crepe, dark	80@108	1/ 9⅛@2/ 1	42.82@50.68
Crepe, barky	80@100	1/ 7 @1/11½	38.51@47.13
Scrap, virgin	65@ 88	1/ 3⅞@1/ 8¾	32.18@42.06
Scrap, untreated	72	1/ 5⅛	35.22

*Picul = 133⅓ pounds.
Quoted in S. S. dollars = 2/4 [56 cents].

TOTAL EXORTS FROM MALAYA.

(From January to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore. March 6.	Malacca. Feb. 28.	Penang. Jan. 31.	Port-Swetenham. Feb. 28.	Total
Great Britain *pounds*	7,726,463	1,385,559	2,262,933	5,493,794	16,868,749
Continent	725,496	.....	106,266	2,240	834,002
Japan	9,067	.....	.....	.....	9,067
Ceylon	50,112	.....	73,733	314,028	437,873
United States	2,477,808	.....	70,666	.....	2,548,474
Australia	65,200	.....	.....	.....	65,200
Total	11,054,146	1,385,559	2,513,598	5,810,062	20,763,365
1914, to Mar. 11	7,145,573	886,300	1,746,266	5,084,254	14,862,383
1813	4,806,621	.....	1,027,733	4,218,179	10,052,533
1912	2,161,478	.....	699,106	3,233,236	6,093,820

PUBLIC SALES IN COLOMBO, CEYLON.

	Ceylon.	Straits.	S. India.
Sales from January 1 to March 5 ..... *pounds*	3,848,915	311,159	58,871
Sales made on March 5	380,079	22,540	.....
Total	4,222,994	333,699	58,871
Total sales to March 5			4,621,564
Total sales for same period 1913			3,197,814
Increase			1,423,750

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"There has been but little change in the general market for commercial paper during the past three months, and the rates ruling in March can be repeated for April, namely, 4@4½ per cent. for the best rubber names and 5@5½ per cent. for those not so well known; the demand from banks continues good."

NEW YORK PRICES FOR MARCH (NEW RUBBER).

	1915.	1914.	1913.
Upriver, fine	$0.58@0.60	$0.73@0.76	$0.88@0.96
Upriver, coarse	.45@ .47	.43@ .46	.64@ .72
Islands, fine	.51@ .53	.68@ .70	.85@ .92
Islands, coarse	.30@ .32	.31@ .33	.41@ .47
Cametá	.34@ .37	.35@ .36	.43@ .48

RUBBER STATISTICS FOR LONDON AND LIVERPOOL, MARCH, 1915.

	Imports.	Deliveries.	Stocks. 1913.	1914.	1915.
London—					
Plantation ..... *tons*	5,957	6,255	2,823	3,754	6,877
Other kinds	24	108	958	593	590
Total	5,981	6,363	3,781	4,347	7,467
Liverpool—					
Pará	2,287	1,877	1,150	1,203	1,178
Other kinds	435	423	1,036	1,059	335
Total	2,722	2,300	2,186	2,262	1,513
Total London and Liverpool ...	8,703	8,663	5,967	6,609	8,980

MOVEMENTS OF ALL KINDS OF RUBBER IN THE UNITED KINGDOM.

	March.			Three months ending March.		
	1913.	1914.	1915.	1913.	1914.	1915.
Dutch East Indies ..... *tons.*	...	...	251	...	...	674
French West Africa	224	70	66	451	121	105
Gold Coast	74	58	20	279	98	42
Other Countries in Africa	...	...	192	...	...	623
Peru	12	93	229	346	271	265
Brazil	2,109	1,865	1,904	5,699	4,800	3,216
British India	...	...	146	...	...	519
Straits Settlements	1,179	1,934	3,620	3,424	4,968	9,412
Federated Malay States	896	1,084	1,248	2,290	2,942	3,092
Ceylon and Dependencies	515	712	2,037	1,594	2,135	5,481
Other Countries	1,215	1,444	281	4,433	4,380	509
Total Imports	6,224	7,260	9,994	18,516	19,715	23,938
Exports from United Kingdom, March	3,629	5,564	6,755	10,820	13,935	13,624

THE RUBBER SCRAP MARKET.

THE first two weeks of April were characteristic by unsettled conditions and an uninteresting market. The signs of firmer market conditions that developed about the middle of the month helped to advance the price of boots, shoes and tires. The white tires in most demand are Goodyear and Goodrich.

There was marked activity during the third week, caused by several heavy orders being taken for immediate delivery. Auto tires were marked up a little higher on heavy buying orders and a good demand for selected white tires was noticeable.

The market in general has been decidedly stronger the last week of the month and prices on all grades with some few exceptions have advanced, particularly on boots, shoes, arctics and auto tires. Inquiries from the mills show more interest than for some time heretofore and there are reports of heavy orders being placed for immediate delivery. In auto tires the demand is principally for selected white brands, while mixed tires are held at nominal prices.

In the Canadian market business during the past month has been hardly sufficient to change prices. Boots and shoes were sold only in small lots, and auto tires were very dull. Toward the end of the month boots and shoes were in better demand and prices advanced. Auto tires showed a slight improvement, while inner tubes are steady. The situation, however, is not what it would be if rubber scrap could be freely shipped to the United States.

RUBBER SCRAP PRICES PAID BY CONSUMERS FOR CARLOAD LOTS.

New York, April 30, 1915.

	Per Pound.
Boots and shoes ..... *cents*	7½@ 7⅝
Trimmed arctics	5¾@ 5⅞
Auto tires	4½@ 4¾
Solid tires	4⅛@ 4½
No. 1 inner tubes	24½@24¾
No. 2 inner tubes	11½@12½
Red tubes	13 @13½
Bicycle tires	3 @
Irony tires	1¼@ 2¼
No. 1 auto peelings	10½@11
Mixed auto peelings	8 @ 8½
No. 1 soft white rubber	11 @12
White wringer rubber	9 @
No. 1 red scrap	10 @11
Mixed red scrap	7¼@ 7½
Mixed black scrap	2¼@
Rubber car springs	3¼@
Horse shoe pads	3 @ 3¼
Matting and packing	½@ ¾
Garden hose	⅝@ ¾
Air brake hose	3¼@ 3½
Cotton fire hose	1¾@ 2

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SOME LATE FIRE DEPARTMENT AWARDS.

A contract for 40,000 feet of 2½-inch fire hose was recently awarded to the Manhattan Rubber Manufacturing Co., of Passaic, New Jersey, by the New York City fire department. This company has also received contracts for 3,700 feet of hose for Springfield, Ohio; 3,000 feet for Yonkers, New York; 600 feet for Independence, Iowa; 400 feet for Madison, Wisconsin; and 200 feet for Seneca, Illinois.

The Eureka Fire Hose Co., of New York, has been awarded a contract for 2,500 feet for the fire department of Cleveland, Ohio; 800 feet for the town of Lackawanna, New York, and 600 feet each for Parsons, Iowa, and Catasauqua, Pennsylvania.

The New York Belting & Packing Co., of New York, will supply the city of Madison, Wisconsin, with 500 feet of hose, and the city of Mauston, Wisconsin, with 300 feet of hose, besides fire coats and hats.

The Empire Rubber & Tire Co., of Trenton, has been awarded contracts by the cities of El Paso, Texas, and Leland, Illinois, for 500 feet of hose each, and by Madison, Wisconsin, a contract for 400 feet.

The Bi-Lateral Fire Hose Co., of Chicago, is to furnish 3,000 feet of hose for Atlanta, Georgia, and 300 feet for Marion, Ohio. The New Jersey Car Spring & Rubber Co., of Jersey City, has a contract for 500 feet of hose for Madison, Wisconsin; The B. F. Goodrich Co., of Akron, 600 feet for Marion, Ohio; the Republic Rubber Co., of Youngstown, 600 feet for Marion, Ohio, and the Forest City Rubber Co., of Cleveland, Ohio, 2,500 feet for Cleveland.

Contracts have also been awarded for rubber tires and tubes for New York City fire department equipment, as follows: Globe Tire Co., $1,285.63; United States Tire Co., $1,923.10; Firestone Tire & Rubber Co., $442.26.

A FIRE DEPARTMENT ENGINEER ON RUBBER-LINED HOSE.

In a contribution to the March 31 issue of "Fire & Water Engineering," Frank G. Reynolds, of the Augusta, Georgia, fire department, has the following to say on the subject of fire hose and equipment:

"Two and one-half inch cotton rubber-lined two-ply fire hose manufactured by a reputable manufacturer, under a guarantee for three years against defects, is all that can be expected. Each company with a capacity of 1,000 feet of hose should have a relay of 1,000 feet on the dry-rack at each station. Reserve-wagon at headquarters should be fully equipped with 1,000 feet, ladders, extinguishers, hooks, axes, etc., ready for immediate use. Each engine company should be equipped with a deluge set, with tips 1¼ inch to 1¾ inch."

RUBBER SHARES REACH HIGH FIGURES.

On April 14, the common stock of the United States Rubber Co. sold at 74¾. This is a rise of over 30 points from the lowest price in 1914. This stock sold at 13½ in 1907, but at that time it was paying no dividends.

Early in April the Goodrich common sold at 53¾. Its lowest price last year was 19⅝.

The following market quotations of the shares of rubber manufacturing companies on April 29 last are furnished by John Burnham & Co., 31 Nassau street, New York, and 41 South La Salle street, Chicago:

	Bid.	Asked.
Ajax-Grieb Rubber Co., common	285	...
Ajax-Grieb Rubber Co., preferred	100	...
Firestone Tire & Rubber Co., common	92	95
Firestone Tire & Rubber Co., preferred	95	98
The B. F. Goodrich Co., common	49	49½
The B. F. Goodrich Co., preferred	102	103
Goodyear Tire & Rubber Co., common	239	240
Goodyear Tire & Rubber Co., preferred	104	105
Kelly-Springfield Tire Co., common	134	135
Kelly-Springfield Tire Co., 1st preferred	84	85
Kelly-Springfield Tire Co., 2nd preferred	130	140
Miller Rubber Co., common	180	188
Miller Rubber Co., preferred	104	105
Portage Rubber Co., common	35	38
Portage Rubber Co., preferred	85	88
Swinehart Tire & Rubber Co.	80	90
United States Rubber Co., common	69	70
United States Rubber Co., preferred	107½	108